approach

JUNE 1977 THE NAVAL AVIATION SAFETY REVIEW

B Rader

ZERO/ZERO

By Charles D. Svoboda

Reprinted by permission of FLYING MAGAZINE, Copyright © 1976, Ziff-Davis Publishing Company.

"HOURS and hours of sheer boredom, interspersed with moments of sheer terror." Where had I first heard that? Was it Ernest K. Gann describing airline flying, or was it someone describing MATS (Military Air Transport Service) flying?

Whichever. The statement applies equally to both.

It happened some time in 1965 in Germany. I was a copilot, so I knew everything that there was to know about flying, and I was frustrated by pilots like my aircraft commander. He was one of those "by the number" types. No class. No imagination. No "feel" for flying.

You have to be able to *feel* an airplane. So what if your altitude is a little off, or if the glide slope indicator is off a hair? If it feels OK, then it's OK. That's what I believed.

Every time he let me make an approach, even in VFR conditions, he demanded perfection. Not the slightest deviation was permitted. "If you can't do it when there's no pressure, you surely can't do it when the pucker factor increases," he would say. When he shot an approach, it was as if all of the instruments were frozen. Perfection. But no class.

Then came that flight from the Azores to Germany. Routine. Weather OK; 45,000 pounds of fuel; enough cargo to bring the weight of our C-124 *Globemaster* up to 180,000 pounds, 5000 pounds below the maximum allowable. No sweat. It would be an easy, routine flight all the way.

Halfway to the European mainland, the weather started getting bad. I kept getting updates by high frequency radio. Our destination, a fighter base, went zero/zero. Our two alternates followed shortly thereafter. All of France was down. We held for 2 hours, and the weather got worse. Somewhere, I heard a fighter pilot declare an emergency because of minimum fuel. He shot two approaches and saw nothing. On the third try, he flamed out and had to eject.

We made a precision radar approach – nothing but fuzzy fog at minimums. The sun was setting. Now I started to sweat a little. Maybe there would be some of those "moments of sheer terror." I turned on the instrument lights.

When I looked out to where the wings should be, I couldn't even see the navigation lights 85 feet from my eyes. I could barely make out a dull glow from the exhaust stacks of the closest engine, and then only with climb power. When we reduced power to maximum endurance, that friendly glow faded.

The pilot asked the engineer how we stood on fuel. The reply was, "I don't know – we're so low that the book says the gages are unreliable below this point." The navigator became a little frantic. We didn't carry parachutes on regular MATS flights, so we couldn't follow the fighter pilot's example. We would land or crash with the airplane.

The pilot then asked me which of the two nearby fighter bases had the widest runway. I looked it up – and we declared an emergency as we headed for that field. The pilot then began his briefing.

"This will be for real. No missed approach. We'll make an ILS and get precision radar to keep us honest. Copilot, we'll use half-flaps. That'll put the approach speed a little higher, but the pitch angle will be almost level, requiring less attitude change in the flare."

Why hadn't I thought of that? Where were my "feel" and "class" now?

The briefing continued, "I'll lock on the gages. You get ready to take over and complete the landing if you see the runway. That way there'll be less room for trouble with me trying to transition from instruments to visual with only a second or two before touchdown." Hey, he's even going to take advantage of his copilot, I thought. He's not so stupid, after all.

"Until we see the runway, you call off every hundred feet above the touchdown; until we get down to 100 feet, use the pressure altimeter. Then switch to the radar altimeter for the last hundred feet, and call off every 25 feet. Keep me honest on the airspeed, also. Engineer, when we touch down, I'll cut the mixtures with the master control lever, and you cut all of the mags. Are there any questions? Let's go!" All of a sudden, this unfeeling, by-the-numbers robot was making a lot of sense. Maybe he really was a pilot, and maybe I had something more to learn about flying.

We made a short procedure turn to save gas. Radar control helped us get to the outer marker. One-half mile away, we performed the before-landing checklist: gear down, flaps 20 degrees. The course deviation indicator was locked in the middle, with the glide slope indicator starting

its trip down from the top of the case. When the GSI centered, the pilot called for a small power reduction, lowered the nose slightly, and all of the instruments, except the altimeter, froze. My Lord, that man had a feel for that airplane! He thought something, and the airplane, all 135,000 pounds of it, did what he thought.

"Five hundred feet," I called out.

"Four hundred feet.

"Three hundred feet.

"Two hundred feet, MATS minimums.

"One hundred feet, Air Force minimums; I'm switching to the radar altimeter.

"Seventy-five feet, nothing in sight.

"Fifty feet, still nothing.

"Twenty-five feet, airspeed 100 knots."

The nose of the airplane rotated just a couple of degrees, and the airspeed started down. The pilot then casually said, "Hang on, we're landing."

"Airspeed 90 knots.

"Ten feet, here we go!"

The pilot reached up and cut the mixtures with the master control lever, without taking his eyes off the instruments. He told the engineer to cut all the mags to reduce the chance of fire.

Contact! I could barely feel it. As smooth a landing as I had ever known, and I couldn't even tell if we were on the runway, because we could only see an occasional blur of a light streaking by.

"Copilot, verify hydraulic boost pump is on; I'll need it for brakes and steering." I complied.

"Hydraulic boost pump is on, pressure is up." The brakes came on slowly (wouldn't want to skid this big beast now). I looked over at the pilot. He was still on the instruments, steering to keep the course deviation indicator in the center, and that is exactly where it stayed.

"Airspeed 50 knots." We might make it yet.

"Airspeed 25 knots." We'll make it if we don't run off a cliff. Then I heard a strange sound. I could hear the whir of the gyros, the buzz of the inverters, and a low frequency thumping. Nothing else. The thumping was my pulse, and I couldn't hear anyone breathing. We had made it! We were standing still!

The aircraft commander was still all pilot. "After landing checklist, get all those motors, radar, and unnecessary radios off while we still have batteries. Copilot, tell them that we have arrived, to send a follow-me truck out to the runway because we can't even see the edges."

I left the VHF on and thanked GCA for the approach. The guys in the tower didn't believe that we were there. They had walked outside and couldn't hear or see anything. We assured them that we were there, somewhere on the localizer centerline, with about one-half mile showing on the DME.

We waited about 20 minutes for the truck, not being in our customary hurry, just getting our breath back and letting our pulses diminish to a reasonable rate. Then I felt it. The cockpit shuddered as if the nose gear had run over a bump. I told the loadmaster to go out the crew entrance to see what had happened. He dropped the door (which is immediately in front of the nose gear), and it hit something with a loud, metallic bang.

He came on the interphone and said, "Sir, you'll never believe this. The follow-me truck couldn't see us and ran smack into our nose tire with his bumper. But he bounced off, and nothing is hurt."

The pilot then told the tower that we were parking the bird right where it was and that we would come in via the truck. It took a few minutes to get our clothing and to close up the airplane. I climbed out and saw the nose tires straddling the runway centerline. A few feet away was the truck with its embarrassed driver.

Total damage: one dent in the hood of the follow-me truck, where the hatch had opened on it.

Then I remembered the story from *Fate Is the Hunter.* When Gann was an airline copilot making a simple night-range approach, his captain kept lighting matches in front of his eyes. It scared him and infuriated him. When they landed, the captain said that Gann was ready to upgrade to captain. If he could handle a night-range approach with all of that harassment, he could handle anything.

At last I understood what true professionalism is. Being a pilot isn't all seat-of-the-pants flying and glory. It's self-discipline, practice, study, analysis, and preparation. It's *precision.* If you can't keep the gages where you want them with everything free and easy, how can you keep them there when everything goes wrong?

The only thing that stands between some people and the top of the ladder is the ladder.

Ace L.

APPROACH is a monthly publication published by Commander, Naval Safety Center, Norfolk, VA 23511. Subscription price: $11.70 per year; $2.95 additional for foreign mailing. Subscription requests should be directed to: Superintendent of Documents, Government Printing Office, Washington, DC 20402. Controlled circulation postage paid at Norfolk, VA.

Good heavens!

A *VIGILANTE* crew had been out tooling around on a routine training flight, and it came time to head for home. The aircraft commander contacted Center, while inbound from an operating area, and requested clearance to Homeplate.

His clearance came through as requested, and in due time, he was handed off to Approach. The weather was right down on the deck, and it was pitchy black. A GCA was the only way the RA-5 could get in.

The duty runway had been Runway 30. Tower controllers and GCA controllers had been discussing whether to stick with Runway 30 or shift the duty to Runway 04, due to shifting winds. When the RA-5 pilot switched from Approach to GCA, the watch supervisor, who was in the GCA unit, decided to use Runway 04.

During reorientation of the GCA unit to Runway 04, the tower was *not* notified of the decision to change runways. Weather at the time was 300 feet obscured, 2 miles in fog, winds 5-10 knots with gusts to 15 between 350-060 degrees.

The pilot shot a GCA, picked up the field but not the runway, and took a waveoff at decision height. Since GCA had the transmitter keyed, the pilot couldn't tell GCA the runway lights were off. In the tower, a controller had been expecting GCA to request a landing for the RA-5 on Runway 30. When GCA requested Runway 04, permission was granted to land the aircraft, but the request for Runway 04 didn't register.

The second approach and landing of the RA-5 was routine – after everyone got together! One might have expected this to happen 30 years ago, but to have it happen today in the U.S. of A. is unreal!

Luckily, there was no aircraft emergency during the breakdown in communications, or there could have been a catastrophe. Air operations officers, could this happen at your station? ◄

"Tower, say your

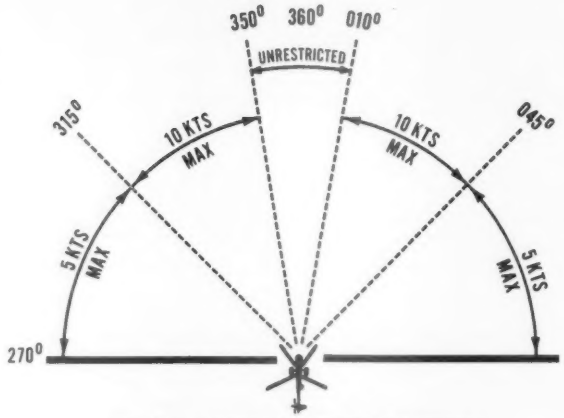
DAY carrier operations are ready to begin with the launch of the plane guard helo from spot No. 4. The winds are 320/15. The pilot is given the launch signal, but instead of complying, he informs the air boss that the winds are out of the envelope for his helo. The air boss informs the captain, who turns the ship to give the helicopter better winds. This is the professional approach, and using the NATOPS wind envelope for launch and recovery aboard the carrier is now routine SOP.

The importance of wind as a launch/recovery parameter for helicopters has long been recognized as an aerodynamic fact. A DEC '55 APPROACH article, "Angels in Distress," stated, "The relative direction of the wind, its velocity, and the degree of turbulence must be within the prescribed operating limits of the particular helicopter." In the early seventies, the NATC (Naval Air Test Center) instituted a program to test helicopters to determine the safe operating limitations for launch/recovery in a shipboard environment. The idea behind this program was to publish envelopes defining wind limitations for every class ship from which helos could operate, taking into consideration such parameters as deck roll, turbulence, weight, and deck lighting. As a result, only three dynamic interface envelopes for the H-3 were derived – the H-3/CG-10, H-3/AE-26, and one for H-3/LPH. Obviously, these decks are seldom used compared with the CV on which H-3 squadrons are based. There is no H-3/CV dynamic interface envelope.

Determination and publication of an H-3/CV dynamic interface envelope is needed as the next step to enhance the professional approach to helicopter launch/recovery. To appreciate this need, it is important to look at what we are using now for a wind envelope, at some of the changes that have taken place in the H-3 since its introduction, and the safety aspects of the existing situation.

Figure 1 is the H-3 NATOPS launch/recovery wind envelope which we are using today aboard the carrier. It has

RELATIVE WIND LIMITS
NATOPS



H-3 LAUNCH/RECOVERY

Fig. 1

been in use at least since the 1960's, and according to rotary-wing officials at NATC, is not based on any actual test data but on the early experience and opinions of senior SH-3A pilots. When it first was published, it was applicable to night/IFR recoveries only. No specific criteria for day recoveries was set forth. The same chart was also published in the CVA/CVS NATOPS Manual as a guide for all helicopters. In 1971, this envelope became applicable to day/VFR launches and recoveries as well, and during the last 2 or 3 years, it has been strictly adhered to aboard most carriers. Examining the envelope, one can see that the winds permitted between 350 and 010 are unrestricted. The recently derived H-3 dynamic interface envelopes for other decks have some limit in this area – usually 40 to 50 knots. Is this, then, a safe envelope to use?

If we assume for the sake of argument that this envelope based on nonscientific data is accurate, there still will have been a variety of changes in the H-3 which could invalidate it. Weight is an accepted variable in wind envelopes, and the maximum gross weight of the SH-3H is now 21,000 pounds

winds!"

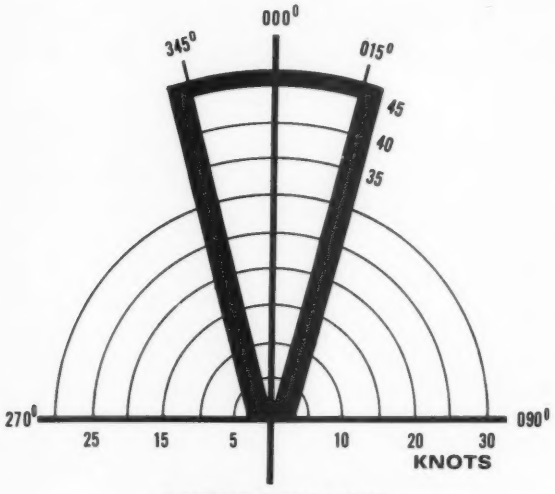
By LCDR William C. Vivian, HS-1
COMNAVAIRLANT H-3 NATOPS Evaluator

compared to 19,100 pounds for the SH-3A of the sixties. Even if the maximum gross weight of the aircraft had not changed, it is ridiculous to assume that an envelope that applies to a 21,000-pound helicopter also applies to an 18,000-pound helicopter, which are typical takeoff and landing weights, respectively.

Tail rotor buzz is a hazardous vibration caused by winds from 020 to 100 degrees at 15 knots or greater and, as such, complicates launch/recovery criteria. Heavy H-3s with winds in this area have experienced this phenomenon on occasion. When incorporated, AFC 314 puts a larger tail on H-3s, and according to the contractor, this AFC has eliminated the susceptibility of the H-3 to tail rotor buzz under normal operating conditions. This factor alone should justify the need for an improved envelope.

RELATIVE WIND ENVELOPE

H-3/LPH-9



APPROACH LINE

HEADINGS RELATIVE TO SHIP
SPOTS 2,3 & 5
DAY/NIGHT

0° TO 5° SHIP ROLL 0° TO 1° SHIP PITCH

Fig. 2

An improved and accurate H-3/CV wind envelope similar to the H-3/LPH envelope in Fig. 2 would provide operational benefits to the carrier. HS-15 and HS-7 used the H-3/LPH envelope safely aboard the USS GUAM for several years with the heavy SH-3H. With an H-3/CV envelope, the ship would have to make fewer turns to provide the helicopter with winds, making helo operations more flexible. Elimination of unnecessary ship maneuvers would probably improve timeliness of fixed-wing and helicopter launches and recoveries.

In summary, an up-to-date, accurate, and safe H-3/CV dynamic interface envelope is needed and would operationally benefit all who work with H-3s on carriers. By having only the NATOPS wind envelope to use for launch and recovery guidance, it is evident that the present CV wind envelope situation is roughly equivalent to a fixed-wing pilot using launch/recovery bulletins for some other aircraft.

Even though the NATOPS wind envelope is out of date and overly restrictive, it is still the only published CV launch/recovery criteria the H-3 has, and its use is mandatory. It is important to preserve and encourage the professional habit pattern we have established since the advent of the CV concept by using this envelope until it is determined to be economical to update it. Until an H-3/CV dynamic interface envelope is published, that helo on spot 4 with winds at 320/15 had better not launch. The NATOPS envelope is it. ◄

Let's wait and see

THE crew of a four-engine turboprop took off on a long range flight overseas. About 4 hours after departure, the copilot and flight engineer saw a brief flicker from the No. 3 engine annunciator panel. They investigated but were unable to determine the source.

Thirty minutes later, the No. 3 engine chips light began

flashing intermittently. The aircraft commander elected to keep the engine on the line. He kept a careful eye out for any secondary indications of failure, or a steady illumination of the warning light. His decision was influenced by lousy weather conditions in their vicinity and at their divert field. The destination weather was good.

They were cruising at FL230, just above a solid undercast. Around them were numerous large thunderstorm cells, with estimated tops above FL330. Their aircraft radar was inoperative. The chips light continued flashing for about an hour.

Five and a half hours after takeoff, the warning light came on steady. The aircraft commander was in the flight station, but not in a seat. One of the pilots retarded the No. 3 power lever to flight idle, and they all waited to see if the altitude would stabilize on three engines, so they could stay in VMC.

Then the No. 3 engine power lever began to vibrate. It was time to shut the engine down, and it was secured in accordance with NATOPS. Immediately thereafter, other problems developed, as the aircraft rapidly lost pressurization. The pilot in control in the right seat started a descent while the pilot in the left seat donned his smoke mask. The left seater, in his hurry to don his mask, unknowingly disconnected his ICS (intercommunications system) and communications cords. He then assumed control of the aircraft. The right seater donned his mask and, in the process, entangled his communications cord with the chart light extension cord. The right seater was severely restricted in his head movements, and couldn't tune the radios without pulling his *Plantronic* earphone out.

The engine securing, donning of masks, descent into IMC, and control changes were all directed by the aircraft commander. He also directed the radioman to report the emergency descent to Island Airways, and to request FL150. The new altitude assigned was as requested.

The aircraft commander was not yet on oxygen and began to show signs of hypoxia. He became confused about the proper direction to correct for a right-of-course deviation. He was urged to get in the seat, which he did, and put on the mask. He found the mixup in the cords and corrected them. In moments, he was alert and decided to divert, in spite of the bad weather report.

The aircraft commander reasoned that the divert was better than proceeding on three engines, at night, in IMC. Any way, he had an out. If they weren't able to land, they had plenty of fuel to shoot an approach and continue on to their original destination. They landed safely at the divert field.

Investigation revealed that the No. 3 engine had failed, and they had lost pressurization because of defective A and C valves in the No. 2 EDC (engine driven compressor) system. Indications of the latter problem had been reported twice previously. However, the gripe was not written up clearly, and troubleshooting had not been completed before the aircraft departed.

The endorser commented that a long train of actions resulted which reduced the options available to the aircraft and crew on the overseas flight. In chronological order, these actions were:

- The decision to operate the aircraft with unresolved gripes on the temperature/pressure system.
- The decision to take off with an inoperative radar.
- The decision to operate an engine for an hour with an intermittent chips light. (But that may have avoided thunderstorm penetration on three engines.)
- The decision of the aircraft commander to delay positioning himself at the controls with a latent emergency in progress.

GRADES for helicopter pilots

By LT Richard Jaeger
HSL-34

Major Helicopter Aircraft Accident Rates

	Embarked	Ashore	All Helo
FY-72	2.43	.89	1.07
FY-73	1.79	.71	.87
FY-74	.70	.78	.77
FY-75	1.52	.66	.79
FY-76	.34	.65	.59

Fig. 1

A GREAT deal has been written concerning helicopters on aircraft carriers. Operating aircraft embarked is more difficult, more demanding, and much less forgiving than operating from a nice, flat piece of real estate. However, give the helo crew the visual cues, proper winds, and deck space required, and the heartburn and expletives are unnecessary. The same can be said for any ship with a helicopter deck. It wasn't always thus, but the cooperation of shipboard personnel and helicopter crews have resulted in a safer operation as the years go by. (See Fig. 1.)

All-weather helicopter operations from small destroyers are increasing and are the norm in most major fleets. This is, however, a unique environment requiring special attention. The problems with helicopter operations on destroyers increase rapidly as the size of the ship decreases. It doesn't take a whole lot of thought to realize that a destroyer in rough seas has the motion characteristics of a cork. Complicating the problem are the box canyon obstructions forward of the flight deck. Further, flight deck landings on destroyers is a game of inches – not feet.

Flight operations from a destroyer are as different from carriers as carriers are from naval air stations. Flying night, low altitude patterns above water demands the pilot's undivided attention. It can be done and must be done on the gages. When it's time to land, the pilot must have some visual cues, and those that are available from the destroyer hardly look like the cues available from a carrier.

A review of accident statistics shows that the helicopter pilots are doing a fine job. Improvements in deck surfaces and lighting, instrumentation, the glide slope indicator, and others by AIR/SHIPSYSCOM have done much to improve the helicopter pilot's lot. However, do we really have a good operational capability from our destroyers? Good capability in relation to what?

There are no standards in the takeoff and landing environment of destroyers. That is a problem. The best helicopter weapons

PILOT DATE SHIP

INSTRUCTOR PILOT SEAT POSITION LEFT/RIGHT

IDEAL LANDING – HELO ON THE LINEUP LINE,
RADOME OVER THE TOUCHDOWN SPOT (SH-2F)

GROUP A (NEGATIVE FACTORS)

	PTS 1	2	3
APPROACH			
FAST		X	
SLOW			
HIGH			
LOW			X
POOR APP CUS			
HOVER			
HIGH			
LOW			
EXCESSIVE MOVEMENT			
LANDING			
DRIFT RIGHT			
DRIFT LEFT			
DRIFT FWD			
DRIFT AFT			
HARD LANDING			
POOR YAW CONTL			
PLACEMENT			
RADOME ½ OFF SPOT			
TAILWHEEL 2 FT LFT OR RT	X		
MN WHLS TOUCH LNDG CRCLE		X	
ANY WHL 4 FT FRM DECK EDGE			
RADOME NOT OVER SPOT			
MN WHLS OUTSIDE CRCLE			

VALUE OF EACH FACTOR IS PREDETERMINED

GROUP A – TOTAL: 8

GROUP B (POSITIVE FACTORS)

PITCH AND ROLL OUTER 50% ENVELOPE	X		
WINDS IN OUTER 50% ENVELOPE			
PITCH, ROLL, WINDS OUTSIDE ENVELOPE			
NIGHT LANDING	X		
CONTROL MALFUNCTION, ENG FAIL			

GROUP B – TOTAL: 2

SCORE: (BASE OF 10)

10 – 8 + 2 = 4
GROUP A GROUP B TOTAL

The white boxes indicate the number of points assignable for each graded area, i.e., fast on approach receives 2 points.

Fig. 2

system is useless if the aircraft can't get airborne, perform its mission, and return. Helicopters will be expected to go beyond current operational limits if we become involved in a big one. How far can we go and at what risk? We need to know how far the operational capability can be expanded and what price, in terms of safety, can be anticipated. Today, we have safety with certain restrictions in operations.

A look at the destroyer deck landing training procedures in the SH-2F NATOPS manual leaves one with a sinking feeling. There aren't any! This is true to a degree throughout the helicopter community. Pilot training, standardization, and realistic qualification are of pre-NATOPS vintage. That means, at best, it is limited to squadron SOP. An informal and limited sample reveals that within squadrons and detachments, agreement on technique and procedures is difficult. The carrier world has developed a sound and viable system for landing procedures, training, and qualification. They are all transferable, with modifications, and can be learned by the helicopter community.

An example of this can be seen in the experiences of a recently returned LAMPS detachment, which devised a deck landing grading system to identify any pilot weaknesses, monitor trends, and develop desired pitch, roll, and wind combinations. (See Fig. 2 for the pilot grading system.) The grading system has produced the desired indicators for pilots' performance. Also, unexpected benefits have resulted, such as:

- The day pitch and roll combinations proved too restrictive to helo ops.
- Certain wind, pitch, and roll combinations, although within the envelope, proved undesirable.
- Left-seat landings on the port-to-starboard lineup line normally received the lowest grade.
- For the first time, realistic pilot limitations were established.
- A performance standard was established.
- Preferred procedures were developed.
- A measurement (in the sample, 20 percent) of pilot improvement illuminated.

Although this system can be improved and the value judgments may be disputed, it is obvious that there are many benefits from a like system. The fixed-wing carqual/monitoring program is one example.

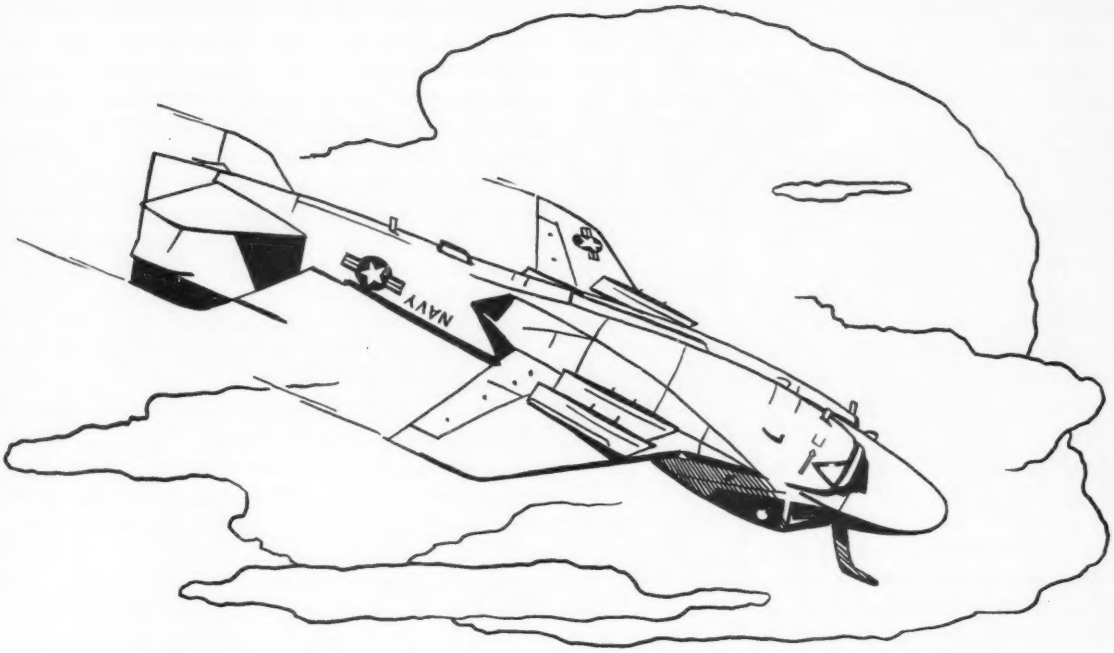
A good system could help tell how far beyond current limits a pilot could go and at what risks. It could help the SYSCOMs design improved shipboard aviation facilities. Best of all, it could tell the CO when a pilot is qualified to operate all-weather, in rough seas, and at night. It could eventually give a fleet norm for helicopter pilot destroyer landing performance. ◄

BUT ONE BREATH LEFT

HYPOXIA: a deadly killer. More than one aircrew has been killed by a lack of oxygen. Several others have been incapacitated – fortunately in dual-piloted aircraft where the other crewmember could recover the aircraft. Pressurized cockpits and the continuous wearing of oxygen masks provide adequate safeguards to prevent hypoxia. Most of the serious incidents happen when the pressurization system fails and the oxygen mask is not worn, or the system fails to provide oxygen due to LOX (liquid oxygen) depletion or equipment malfunction. The moral here should be obvious: if either the oxygen or pressurization system is malfunctioning, don't count on the other one exclusively. Make other provisions for a backup, such as flying at a lower altitude, or fixing the problem before departure. If you don't, you are literally "betting your life" that the other system remains intact.

An A-6 crew chose to gamble with one of their *Intruder's* systems inop – and they almost paid for it. After a refueling stop, the crew planned to launch as part of a three-plane flight to return to homebase. The crew was aware of a pressurization problem with their aircraft, but no capability for repair existed at their refueling stop. Moreover, intermittent CNI (communication/navigation/interrogation) equipment dictated that the problem A-6 remain with the rest of the flight, although the final leg had to be flown at high altitude due to fuel considerations.

After start for the return leg, the crew of the *Intruder* observed an oxygen warning light, but oxygen flow checked good, and 8 liters were indicated on the gage. They decided to launch. Twenty minutes after takeoff, at FL310 (cabin altitude the same), the B/N told the pilot he was not receiving a normal flow of oxygen. The pilot immediately informed his flight leader of the problem, and commenced a descent. Simultaneously, the pilot found that his own oxygen supply was also failing. He then noted that the B/N was unconscious and slumped forward in his harness with his mask hanging loose from one side. Declaring an emergency, the pilot performed a VMC split-S maneuver, leveling at 11,000 feet just above a cloud layer. Although the B/N had regained consciousness and appeared coherent, the descent was continued as soon as conditions allowed,



and the crew returned to their intermediate fuel stop base. Both crewmembers were given physicals following the landing and again the next morning. They were found to be fit.

After landing, the pilot removed both LOX converters to determine the malfunction in the oxygen system. Dissimilar weight of the converters indicated one was empty and the other partially full. The converters were serviced by local USAF maintenance personnel, and the quantity indicators read good. Oxygen flow was also normal.

Squadron maintenance personnel returning from a detachment were diverted to the base to fix the pressurization problem. A tear in the canopy seal was found to be the culprit. With a new canopy seal installed and all oxygen systems components operating normally, the *Intruder* launched again and returned uneventfully.

Upon recovery at homebase, squadron maintenance personnel conducted an intensive investigation into the mishap. The investigation revealed:

- The canopy seal was the sole cause of the pressurization problem.
- The LOX gage read 4 liters high.

The possibility that the quick-disconnect fittings were not down and locked was investigated since this would account for the quantity reading, oxygen warning light (activated by low pressure), weight of converters, and lack of oxygen flow at the time of the incident. Quality Assurance personnel were able to recreate the incident by installing one nearly empty converter and one containing about 4 liters. The quick disconnect on the latter converter was then loosened approximately one-half turn. Within 10 minutes, cockpit flow decreased markedly, a pressure drop activated the oxygen warning light, and the quantity indicator read a correct 4 liters.

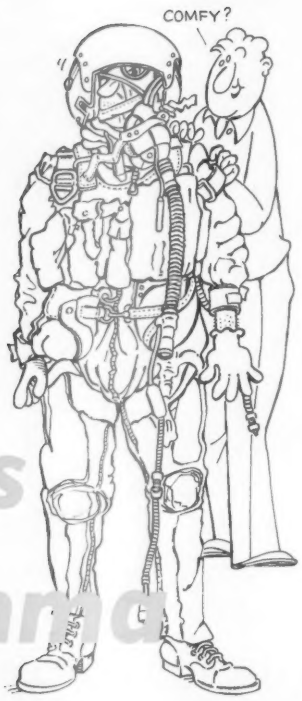
It is almost an axiom in aviation that it requires three mistakes to cause an accident. The first to set the stage, the second to precipitate the incident, and the third (usually an improper response to the *extremis* situation) to consummate the act. This incident follows the pattern. Disaster was averted so very narrowly only by a rapid and correct pilot response to the final *extremis* situation.

The first mistake was the flight leader's decision to fly at high altitude with a bad pressurization system. The second mistake was the pilot's decision to ignore the oxygen caution light, even though he was aware of the pressurization problem. The pilot had recently experienced several erroneous low oxygen lights, but his assumption that this one, too, was erroneous almost proved fatal.

Only the pilot's final, instinctive, and undoubtedly dramatic split-S from 31,000 to 11,000 feet (with an unconscious B/N by his side and one last gulp of oxygen to sustain his own consciousness) ultimately saved them both. Only two mistakes this time, and no accident – this time.◀

The pilot's dilemma

By LCDR Scott Stallings
VF-124



FLIGHT gear has always been the subject of much debate, usually between the aircrew and the rigger whom the pilot has asked to modify his gear. Both sides have valid arguments. The aircrew member is disturbed because his gear does not do the job for him, while the rigger is frustrated because the modifications he is asked to do are not authorized. The crux of the problem is communication. For example, how many URs has your squadron written on flight gear in the last 2 years? Or ever? The flight gear people at the Naval Parachute Test Range and NADC (Naval Air Development Center) are also guilty. They don't find out what the Fleet really wants, and they don't tell the Fleet what's in the works. So this article is intended to get the discourse going.

Let's start by reviewing the flight gear that gives the tactical aircrew the most problems.

Helmets. Helmets are a necessary evil. They are hot, bulky, and generally uncomfortable, but they offer some measure of protection. The currently authorized model, the APH-6, is not the ultimate answer, however. Even if your squadron is lucky enough to have the formfit model recently authorized, several major problems exist. One, for instance, is the weight of the APH-6 shell. At 6 to 7G, a half pound is a lot of extra work for your neck and back muscles. Also,

The rigger's dilemma

By PRC Jose Hernandez-Diaz
Life Support Equipment Analyst

ASK any Aircrew Survival Equipmentman (PR) in the Fleet today what, if any, complaints he has about his job or working conditions. Surprisingly, he will probably not complain about long working hours, too much time at sea, poor living conditions, or other common complaints.

In almost every case, you will find that what bothers him most is the persistence of naval aviators in wearing unauthorized flight equipment or flight equipment with

the center of gravity is off, particularly in the dual visor kit. The weight and center of gravity are hard problems to overcome, because to correct the c.g. problem, the solution is added weight in the form of sheet lead down low in the back of the helmet. This only compounds the weight/G problem.

Another problem of the APH-6 is comfort. Try as you will, it is impossible to have one fit correctly. This results in pressure points, which lead to pain and headaches; not exactly the kind of distraction you want while trying to fly a high performance aircraft.

The only solution to the helmet problem that I see is for somebody to accept the fact that lightweight formfit helmets should be issued to every aircrew. I personally have a *Protection, Inc.* formfit model and have gone so far as to take out insurance on it so that if it's lost or broken, I'll be able to replace it. There are no small, medium, or large heads, and the cost of the formfit helmet compared with its value in terms of comfort, safety, and tactical advantage make it well worth the investment. That pilots are willing to pay money out of their own pockets to buy or insure these helmets is proof.

Oxygen masks. This subject opens a Pandora's box, and it's time the debate should be out in the open. The A-13 oxygen mask dates to the early 1950's and is generally held in contempt by TACAIR aircrews. Since nothing else is authorized, though, we suffer with it. (And how many pilots don't wear it when they should just because of its disadvantages?) When you combine the poor center of gravity of the APH-6 helmet and the even poorer retention

unauthorized modifications. Furthermore, the PR feels powerless to combat the problem against this malpractice. The people he would normally consult are the violators.

This problem is not new to the life support equipment field, but it seems to worsen a bit each day. The severity of the malpractice has been highlighted during safety surveys. However, and this is peculiar, more often than not it's the PR of the unit being surveyed who brings up the subject, rather than the Safety Center inspector.

Let's face it! The PR comes into Fleet units fresh from school where he has been taught consistently and emphatically that the equipment for which he is responsible must always be 100 percent failproof. He knows that to attain this degree of perfection he must be 100 percent professional. He knows there is no room for mistakes when he deals with life support and emergency equipment, and he dedicates himself to error-free performance – knowing that someone's life may depend upon his performance.

Every life support equipment shop (paraloft, aviator's equipment, seat shop, etc.) should be equipped with the latest and most current information that details the proper equipment for aircrewmen to wear, along with instructions for proper use and proper maintenance procedures for such equipment. If aircrewmen are going to depend on life support equipment which is maintained by PRs, then they ought to trust them and follow their advice. The PRs have knowledge of everything related to that equipment and take pride in the work they do.

General NATOPS (OPNAVINST 3710.7H) states in Chapter 7, para 701 that " . . . The latest available flight safety and survival equipment, as authorized by Aviation Crew Systems Manual, Volume 7 (Aircrew Personal Protective Equipment), NAVAIR 13-1-6.7, shall be used by flight personnel and passengers for flight in naval aircraft." The following are the only authorized configurations on the prescribed piece of personal survival equipment set forth by NAVAIR 13-1-6 series:

Pilot's Protective Helmet. Helicopter crewmen shall wear the SPH-3B helmet. Aircrew of aircraft configured with AVG-8 VTAS (visual target acquisition system) shall wear the HGU-30/P formfitted helmet. Others shall wear the APH-6 series. The APH-6D helmet (single visor) shall be established as the required configuration standard. The APH-6C helmet (dual visor) is a limited standard and is worn at the discretion of squadron commanders. The only modifications authorized on the APH-6 series helmets are:

system and weight of the A-13 oxygen mask, you wind up with a combination that is really unsat. In a high G environment, you end up breathing oxygen at your Adam's apple, and the only thing you can see is the stick top because the whole rig has rotated down over your face. Just like the helmets, the oxygen masks come only in small, medium, and large, making a truly proper fit impossible. The Air Force, on the other hand, has multiple sizes and a retention system – the offset bayonet – that works better.

SV-2 Vest. Uncomfortable, hot, and bulky are good words to describe it. The SV-2 vest is the result of experiences in Southeast Asia. But the realities of the conflict are not reflected in it. The primary items required in a vest are a radio, signal mirror, day/night distress flares, and a shroudcutter. To clutter the rest of the body with unneeded paraphernalia is restrictive, cumbersome, and unnecessary. Recent rumors indicate that something is in the mill to change the vest significantly. Any change will be welcome. Could we hear something about it in the Fleet?

Torso Harness. The main problem of the torso harness is the inability of the wearer to ensure the correct fit every time he puts it on. The replacement of the present chest strap with the snap closure of the MA-2P torso harness may be a solution. The argument then becomes: "But the snap will injure the aircrewman's chest on parachute opening shock." And my answer is that Grumman flightcrews wear this type harness all the time, and I know of five ejections with no injuries.

G-suit. The gripes with the G-suit have been many and varied: hard hoses, getting hoses tangled in the connection, laces coming loose, difficult to size, etc. Here, fortunately, "they" may have finally listened to the Fleet. There are now soft hoses, a reduced number of lace type adjusters, and flaps to cover the laces. The question remains, though, when the modifications will be available.

Now that I have aired my gripes, let's talk realities. Formfit helmets are expensive – $250 to $300 a copy. With the number of APH-6s still around, I doubt that the Navy is going to switch to formfits for all. Maybe there is no need for every category of pilots to have formfits. However, every effort should be made to obtain adequate formfit kits for the APH-6, and NADC should try to correct the c.g. problems of the helmet and get that information out to the Fleet as soon as possible. This problem goes hand-in-hand with the oxygen mask problem because of the total interaction of the two. There is a test going on presently on the west coast and maybe on the east coast, too, for switching to the Air Force type mask. VX-4

	Modification	Application
*	Addition of Reflective Tape on Protective Helmet	All helmets, except those worn in combat areas, which may have reflective tape removed at the discretion of the area commander
*	Installation of CX-4832/AR Helmet Cable Assembly	All helmets used in aircraft equipped with A1C-14 intercommunications system
	Modification of Edgeroll	All helmets
*	Addition of Pile Tape on Helmet	All helmets requiring attachment of distress signal light
	Installation of Dual Visor Assembly	All helmets at discretion of squadron commander
	Addition of Cloth Padding on Viros Lock Retaining Screw	All APH-6 series helmets with single visor
	Installation of Sonic Earcups	All helmets
	Modification of Dual Visor Housing	All helmets
	Installation of Boom Microphone	All helmets used in aircraft where a boom microphone is required
	Installation of Single Visor Assembly	All helmets
	Conversion of APH-7 to APH-6	All APH-7 helmets

*** Denotes modifications which are also applicable to the SPH-3B helmet. Initially, during fitting of the helmet, the nape strap pad is positioned in the center of the nape strap and stitched in place. This is not considered a modification. This step does not apply to the helmet chinstrap.**

recommended this change at least 2 years ago, and we still haven't heard anything.

Another problem is our flight gear issue and initial fitting. It could be described as haphazard at best. This is not to say that we don't have dedicated people doing the job. However, the combination of limited equipment size and the lack of customization make optimum fitting difficult. The British system of flight gear issue and fitting should be closely scrutinized by the Navy. The British have a medical doctor who personally supervises individual fittings. The point is that we should make sure it fits well the first time.

I'm a pilot, not an engineer. I realize I'm not aware of all the problems involved designing flight equipment, but the engineers are not aware of all the problems involved in wearing the flight gear they design for me. Rather than throwing rocks at each other, let's open up the dialogue to achieve our common goal. We have the best aircraft in the world. There is no reason why our flight gear can't meet these high standards also. ◄

Few issues are charged with more emotion than the subject of flight gear. These articles reflect two prime complaints: dissatisfaction of aircrews who must wear alleged unsatisfactory equipment, and frustrations of survival equipment technicians who feel pressured into making unauthorized modifications to such equipment to satisfy individual aircrewman desires. A review of Naval Safety Center records reveals 1734 URs (Unsatisfactory Reports) submitted on aircrew survival equipment during the past 5 years.

The areas of attention directed toward reporting deficiencies in this equipment, as evidenced by the frequency of unsatisfactory reports, are noteworthy. For example: 7 URs on anti-G suits; 15 URs on antiexposure suits; 23 related to helmets; 5 related to boots; 75 on oxygen masks and regulators; 166 concerning lifevests; 26 on survival kits, contents, and vests.

In contrast, there were 243 URs submitted on RSSKs (Rigid Seat Survival Kit) and 558 on parachutes (things very near and dear to living).

Since the concept of the UR system was intended to inform appropriate cognizant activities of deficiencies or weaknesses in all types of equipment for any reason, one may draw the conclusion that the UR records do not support apparent fleetwide objections to flight gear inadequacies. If the flight gear is inadequate, let's hear about it. Let's see the discrepancy reports; let's see the pros and cons in writing. The APPROACH Letters to the Editor file is open to express views and opinions, but the discrepancy report is going to get the action. – Ed.

Mk-2 Cutaway Anti-G Coverall. The only authorized modifications on this garment are addition of leg pockets and holding attachment for inlet air tube.

GWU-33/P Antiexposure Suit. The only authorized modification on this suit is the removal of trapped air from antiexposure mittens.

SV-2A Survival Vest. All SV-2A survival vests are to be modified to the SV-2B configuration. Two special modifications to be performed on applicable vests are: 1) installation of helicopter rescue strap to provide lift capability for aircrewmen not configured with an MA-2 torso harness; and 2) installation of VTAS (visual target acquisition system) electrical cable retention tab performed on survival vests worn by pilots assigned to aircraft with VTAS capabilities.

MA-2 Torso Harness. (a) Fabrication of MA-2 cutaway modified (skeleton) performed at aircrewman's discretion; (b) Addition of hook and pile tape to chest strap; (c) Replacement of lapbelt quick release adapter; (d) Installation of fasteners for attachment of VTAS electrical cable.

A special modification to the harness is the fabrication and installation of survival kit restraint straps, applicable only to torso harnesses used in the A-6 aircraft with the GRU-5 ejection seat.

A-13A Oxygen Mask. The only authorized modification is the rigging of the suspension harness subassembly to enable the mask to be used with the SPH-3B helmet. This is applicable only to A-13A masks used on OV-10 aircraft and helicopters which require oxygen breathing.

Aircrew Survival Equipmentmen (PR) are not authorized (nor required) to perform any modifications on life support equipment other than those specifically called for by the applicable maintenance manual.

There are no authorized modifications applicable to flight boots or flight gloves.

Just remember that the PR is trying to keep you from wearing unauthorized equipment or equipment with unauthorized modifications because it is his duty and moral responsibility to protect your life. ◄

Thoughts on tigers, scared tigers, and... Farrah Fawcett

By LtCol Vic Steele
FAA Southern Region Naval Representative

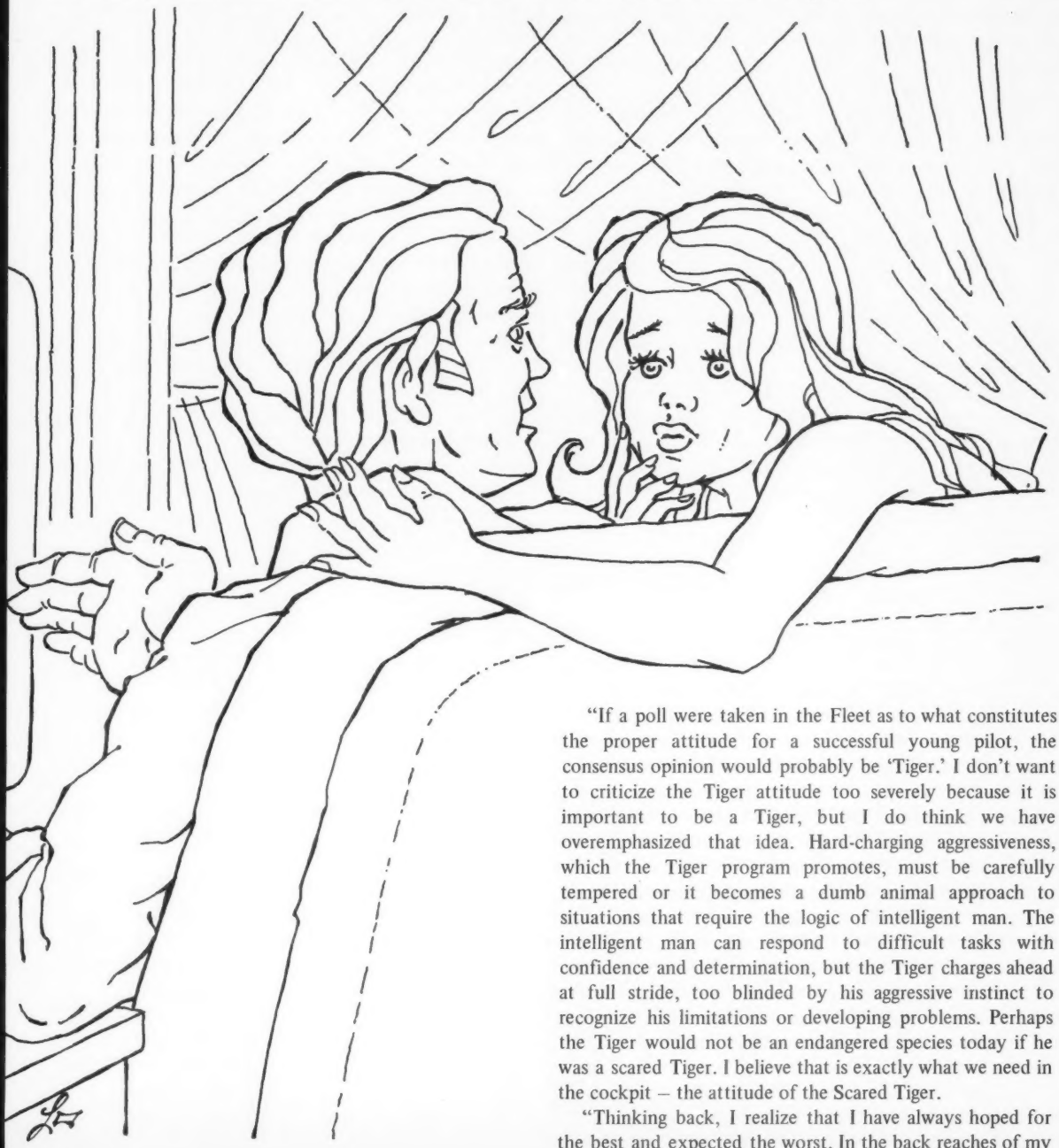
DURING a recent episode of "Baa, Baa, Blacksheep," I began to reflect on my 20 years as a Marine aviator. I had just turned to speak to my long-haired copilot, who was strapped cozily into the right seat of our swept-wing SO-Foxtrot Alpha, when my attention was diverted by Farrah Fawcett appearing on the screen on behalf of an automobile manufacturer (strange, how I never remember the products she endorses). When the "Blacksheep" returned, I realized I had left my mouth open during the entire commercial and that this tactical error, if noticed by my copilot, would undoubtedly result in a long period of radio silence between us. I decided to test her mood by finally voicing the thought that had been interrupted by the jinking Fawcett, specifically that, "When I first began flying in 1956, we were destroying as many of our own aircraft, unassisted, as the Japanese had shot down, back during those busy months in the Pacific."

She sat silently for a minute, and I was afraid that my flycatching act had been observed. But then I realized she had only been thinking about my statement when she asked to what I attributed the improved safety record of recent years. I replied without hesitation that NATOPS was probably the single item that had contributed most to Naval aviation safety. (Even the slowest copilot has learned all the acronyms in 20 years, and her head signal indicated that she understood about NATOPS.)

I watched Pappy's *Corsairs* drill holes in a dozen Japanese SNJs, while the copilot went aft to bring us up some box lunches. When she returned, she said that she accepted my observation about NATOPS, but that she still wondered if I could explain how I personally had survived when so many squadronmates had bought the farm, notwithstanding NATOPS and their skills, which were undoubtedly superior to mine. I thought about it real hard for 20 minutes and lost my lock-on with the *Corsairs* –

even missed a tail shot on the Fawcett – while I bit-checked my memory bank. As the *Corsairs* returned safely to base, I summarized my analysis of self-preservation.

"I am convinced that the most important characteristic of a military aviator is his 'attitude.' It's true that a keen eye, a steady hand, a reliable inner ear, and a quick mind are essential, but those are proven attributes by the time the gold wings are attached. The matter of attitude is much more difficult to detect and qualify, and yet is the determining factor in every way by which a naval aviator can be measured over the long term.



"If a poll were taken in the Fleet as to what constitutes the proper attitude for a successful young pilot, the consensus opinion would probably be 'Tiger.' I don't want to criticize the Tiger attitude too severely because it is important to be a Tiger, but I do think we have overemphasized that idea. Hard-charging aggressiveness, which the Tiger program promotes, must be carefully tempered or it becomes a dumb animal approach to situations that require the logic of intelligent man. The intelligent man can respond to difficult tasks with confidence and determination, but the Tiger charges ahead at full stride, too blinded by his aggressive instinct to recognize his limitations or developing problems. Perhaps the Tiger would not be an endangered species today if he was a scared Tiger. I believe that is exactly what we need in the cockpit – the attitude of the Scared Tiger.

"Thinking back, I realize that I have always hoped for the best and expected the worst. In the back reaches of my

mind, I have preceded each engine start with an imagined engine fire, each takeoff with a flameout, each dirty-up with a hydraulic failure, and each approach with a blown tire. I have never failed to start the engine, release the brakes, or commence the approach because I have been a Tiger, but I have been a Tiger with a controlled subconscious fear that the worst would happen – and it has on several occasions. The overconfidence of a fearless Tiger might have killed me more than once, but the modicum of fear has sharpened my senses, and the pessimism has made me prepared."

When I had completed the foregoing comments, my copilot observed that she had been under the impression that I loved flying, and questioned how I could enjoy it with all that pessimism.

"No, you misread my transmission," I said. "The thing you missed is that one can be confident and determined and still have a controlled fear around the edges of conscious thought. Really, it's not much more than recognizing the potential for disaster, planning ahead, staying alert, and always having an alternate plan. Oh, yes, and one more thing is to never take chances unless the requirements of the mission override the dangers. In Naval aviation, there's usually a lot of pressure to accomplish the mission like a Tiger, which can cause someone to launch when marginal or less than acceptable circumstances exist in the aircraft, aircrew, or weather."

The copilot nodded her head slowly and then said, "Yeah, but what about that word 'marginal'? I've heard you say many times that you flew in marginal weather. How do you account for that?"

"That's a good point. It's always a judgment call. You can't cancel or divert every time some factor reaches a marginal condition, but you had better start thinking seriously if there are two marginals which compound one another. For instance, marginal weather at destination is no big deal if you have a good alternate. But if your radio, your fuel reserve, or your navaids are also marginal, it's time to switch to Plan B because those are compounding factors."

The copilot's eyes widened. "Oh, I get it. All this talk about attitudes and Tigers and marginal equipment – it all boils down to knowing beforehand what your alternatives are during every phase of every flight if something should go wrong – expecting it – and then using good judgment based on the circumstances if it does."

"Exactly, my dear, and never press on based solely on Tiger instinct." I switched off the TV and announced it was time for crew rest.

"Farrah Fawcett has skinny legs," the copilot announced without warning.

I couldn't really agree with that, so I simply rogered. That night, I dreamed not of Tigers but of Cougars.

Rolling (but not merrily) Along

TWO pilots were holding short in their TA-4J for inbound traffic. They were cleared for takeoff behind a touch-and-go. The old head was in the back seat, and a young stud was up front. The latter had performed all checks prior to taking the runway, as instructed. He was also told to waste no time on the runway.

After the touch-and-go had passed, the young stud released brakes, added power, and taxied toward the centerline at a 45-degree angle. However, the TA-4J accelerated too fast to turn down the runway and went zipping off into the toolies. The aircraft was shut down, and investigation revealed that no damage had resulted.

Obviously, the young stud let the aircraft get away from him. The old head didn't help because he had turned his head to ensure no other aircraft was turning final and didn't realize their speed was too fast to line up.

During the brief, the old head had cautioned the young stud not to go to MRT until he was aligned on the centerline. However, they had not discussed how much power to use to perform a rolling takeoff. The old head assumed the young stud would use only what was comfortable or necessary.

Rolling takeoffs are not specifically prohibited in the A-4 NATOPS as long as the takeoff checklist and manual fuel check have been completed. However, rolling takeoffs should be done only when a normal takeoff is not feasible, such as when aircraft are being fed into the FMLP pattern. Then, normal taxi procedures (maximum of 70 percent power to get the aircraft rolling, then power to idle) should be used until the aircraft is aligned with runway heading, at which time takeoff power can be applied. The A-4 has never been famous for its cornering ability!

Bravo Zulu

ENS Carl Pascarell
VA-174

WHEN ENS Carl Pascarell of VA-174 manned up for his initial A-7E familiarization flight, he had no idea that the emergency procedures he had been studying so thoroughly over the past weeks would become necessary so soon. His chase pilot had given him an extensive brief, covering all phases of the flight, but he was soon to discover that once in a while, things don't occur quite as they are planned.

Preflight, line operations, and taxi to the duty runway were uneventful. Positioned on the runway at military power, ENS Pascarell and his chase exchanged "thumbs up," indicating that all cockpit indications and visual checks were satisfactory. ENS Pascarell released the brakes and commenced the takeoff roll for his first single-seat flight.

Liftoff and gear retraction were normal. At 300 feet AGL and 175 KIAS, flaps up was selected, followed immediately by a loud bang and severe airframe vibration accompanied by both MASTER CAUTION and ENGINE HOT lights. While attempting to determine exactly what the problem was, ENS Pascarell's chase pilot was calling for power and instructing him to turn downwind, as the chase could see both excessive smoke and flames coming from the tailpipe.

Due to a loss of thrust, ENS Pascarell could not immediately start a turn, as the aircraft was approximately 3-4 units above optimum angle-of-attack. With the throttle still at military, ENS Pascarell selected flaps down and fuel dump to regain some lift and reduce gross weight. The chase pilot did not call for immediate ejection since the aircraft was over the station weapons storage area and remained flying and controllable.

ENS Pascarell started a downwind turn when his angle-of-attack reduced to optimum, and the rate of descent was stopped at approximately 100 feet AGL. The young pilot had decided during the 20-30 seconds that had elapsed that he would eject if told to do so or if he could not successfully control the aircraft.

The aircraft slowly accelerated and established a 100 foot-per-minute climb at optimum angle-of-attack. With the aircraft under control, ENS Pascarell determined that he could make a safe landing and completed his landing checklist except for gear. As he approached the 180 position at 300 feet AGL, he lowered the landing gear. He immediately raised them, however, as the increased drag caused an excessive rate of descent for the modified precautionary approach he was flying. Rolling into the groove, the gear were again lowered, and ENS Pascarell successfully completed a shortfield arrestment.

The entire hop lasted about 7 minutes. An engine inspection revealed extensive FOD damage in the HP compressor section caused by a blade failure and an inlet guide vane failure. ENS Pascarell's knowledge of emergency procedures, his decisive action, and the outstanding coordination with his chase pilot saved a valuable aircraft.

Well done!

This is the first in a series of airfield profiles. The purpose of this series is to familiarize transient aircrews with various naval air stations around the world. The emphasis will be on unique features and haz ds of the field that exist on a long term basis. The series is intended to supplement, not replace, the IFR Supplement or other preflight planning documents. We encourage filing for reference. Thanks to LT Joe Griffin, PAO of Navy Recruiting District, San Francisco, for the idea.

Naval Air Station Oceana, Virginia

By CDR Dick Morrison
and LT Warren Bunn
NAS Oceana Air Operations Department

WELCOME to Oceana! Here's a short brief on things you might like to know about Oceana before your next cross-country in this direction.

• *Operating capability.* From experience, we have found that we can serve you best by requiring PPRs (prior permission required). By controlling the number of transient aircraft we handle at any one time, we are better able to refuel you, direct you, and park you without unnecessary delay. Our PPRs are set at 30-minute intervals between 0800-1600 on Saturday and Sunday and between 0700-2330 on Monday and Tuesday. Wednesday thru Friday they are set at 15-minute intervals between 0700 and 1530, and 30-minute intervals between 1530 and 2330.

• *Instrument capability.* Oceana's primary instrument runway is 5R, and it will be in use with crosswinds up to 10 knots (depending on runway conditions, of course). Presently, it is the only runway with ACLS capability (both right and left). If you should lose your radios while inbound, we'll try to contact you on button 19 of your UHF aux receiver. Normally, that is our ATIS frequency, but when we pick up your 7600 squawk, we'll take off the record and try to assist you. Formerly, Aux 19 was our UHF homer, but it is no longer in use.

• *Transient service.* After you've landed, we'll try to meet you with a Follow-Me truck. In most cases, it is easier for us to take you through the pits, but if you want to come straight to the transient line, that is no problem since we can refuel you by truck. If you want to hot-pit and go between 1030 and 1100 weekdays, you'll be competing with many of the local squadrons for the pits, since this is frequently the time they recover from their first cycle.

In general, the most important thing you can do to help us and yourself is to let us know your desires. Once the Follow-Me driver is out of the truck, we can no longer communicate with him.

• *Geographic considerations.* We all know that airspace is getting tighter and tighter. Oceana is no exception. Our airspace is limited to the northwest by Norfolk International Airport (5 miles away) and to the southeast by R-6606, which is used for ground-to-air gunnery by Fleet Combat Training Center, Atlantic, Dam Neck.

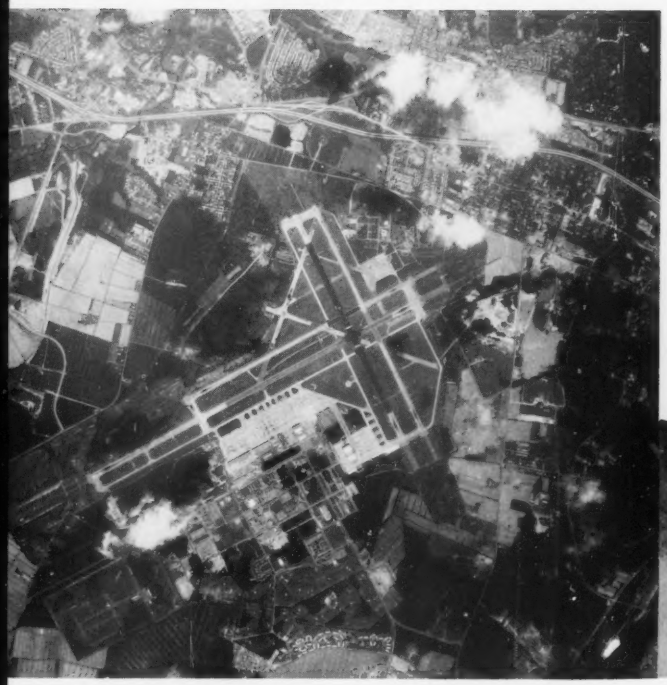
• *Course rules.* There's not much here we can expand on that's not available to you in your planning pubs.

However, keep one thing in mind if you should decide to enter the VFR break: When you are directed to intercept the 3-mile arc, it is important that you do stay inside 3 miles for the reasons listed above concerning Norfolk International and Dam Neck. Tower will probably direct you to maintain 2500 feet until they have you in sight – then they will clear you to 1500 feet for the break.

• *Special problems.*

Arresting gear: If you need to make an arrested landing, no problem. The gear (E-28) on all runways except 32L and 14R can be rerigged in 5 minutes. 32L and 14R have E-15 gear which requires about 30 minutes to rerig.

Noise abatement: Yes, Oceana has it, too. The procedures are on all DD-175s at Base Ops. Read and adhere.

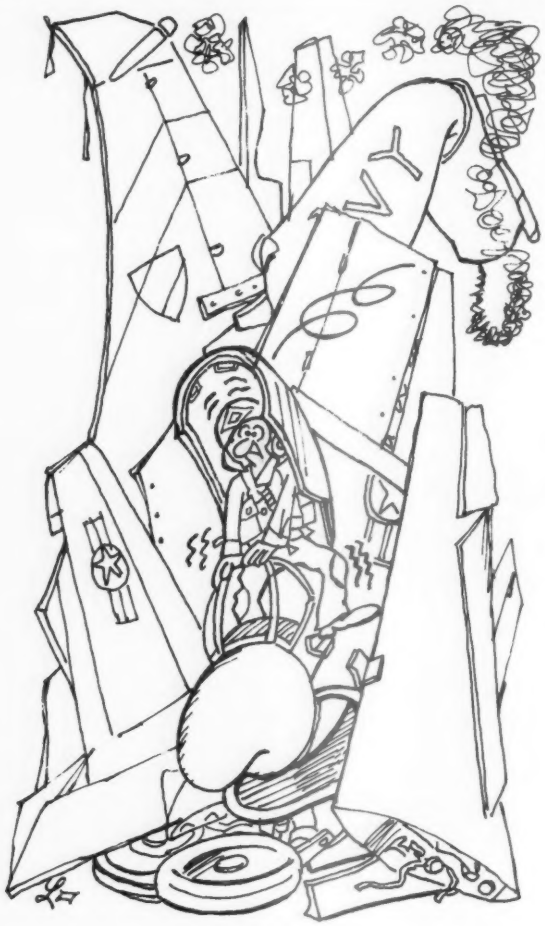


Birds: It's our job to keep the sea gulls clear of the runways, and we have our little ways of dealing with them. But, you should be aware of the problem.

• *Messing/berthing.* For a quick bite to eat, there is a snack bar in Base Ops that is open daily from 0700-1400. After that, there are coin-operated machines available 24 hours a day. If you plan to RON, it might be a good idea (especially during the weekend) to call ahead and get a reservation at the BOQ. The O'Club is just across the street from the BOQ.

Finally, we are continuously trying to improve our transient service, and we want you to use our airfield. When you stop over at Oceana, please fill out a transient pilot questionnaire – we solicit all comments, be they positive or negative. Safe flying, and hope to see you soon!

Station ops officers and safety officers, we need your inputs. To continue our series, we need airfield profiles of your airfield. This article can give you an idea of the type of information we are looking for, but this format is neither mandatory nor rigid. Let us know what information you think would be important to transient pilots, and mail it to Editor, APPROACH, NAVSAFECEN, NAS Norfolk, VA 23511. – Ed.



By CWO3 J. C. Minnis, USN
Airframes Analyst
Naval Safety Center

DURING a recent episode of the "Six Million Dollar Man," just moments after his launch from the B-52 mother ship, I personally saw Col Steve Austin physically override a 3000 psi hydraulic lock in his flight control power system, and would you believe it, he only used one hand! He bent the stick just a little, but aside from the normally expected tense moments, he made a safe landing and exited into the sunset, saying, "Shucks, Oscar, it was nothing to worry yourself about."

Bionic pilots need read no further. However, some of you standard models just might save yourself from a similar frightening situation *if* you learn all you can about the procedures to use when you encounter restrictive flight control conditions.

Several info URs/QDRs have crossed my desk which reveal a frightening trend. Apparently, some pilots are not aware of what to do when they encounter control system binding or restrictions. To quote a case in point: During pretaxi checks, pilot noted control stick would not go beyond two-thirds right travel. Movement to the left was unrestricted. Repeated attempts could not obtain full right stick movement. Aircraft secured, mission aborted. *Cause:* Inspection revealed a flashlight jammed underneath the lateral control bellcrank. The discovery of this FOD is, of course, disturbing, but so are the words "repeated attempts."

Another example: After normal aircraft start, pilot felt stabilator bind during plane captain checks. When pilot attempted to pull control stick to the full aft position, a solid resistance was felt at two-thirds travel, at which point the control stick locked up. Pilot forcibly pushed stick forward, freeing controls. Subsequent control checks resulted in stick binding at any pitch position forward of two-thirds aft stick travel. *Cause:* Examination of squadron aircraft revealed that when the tailhook is lowered, the

tailhook cable assembly becomes loose. Slack in the tailhook cable allows the lower bolt on the stabilator cable bellcrank to snag the tailhook cable. The problem phrase here is "Pilot forcibly pushed stick forward . . . "

Evidently, the motive in these two cases is that if something breaks, at least the airframes men will know what to replace. This is known as "Neanderthal troubleshooting."

The problem with this approach is twofold: you can damage aircraft parts and make more work for maintenance, or you can temporarily free the control stick only to have it bind again when you *really* don't want it to – like in the break at homefield.

So, what can you do to minimize the dangers of restricted or jammed controls? First of all, do thorough preflight and complete poststart checks. Every aircraft NATOPS addresses the minimum procedures to be performed by the pilot prior to flight. When he does less than the minimum, or ignores a "slight" binding condition, he is playing as dangerous a game as Russian Roulette.

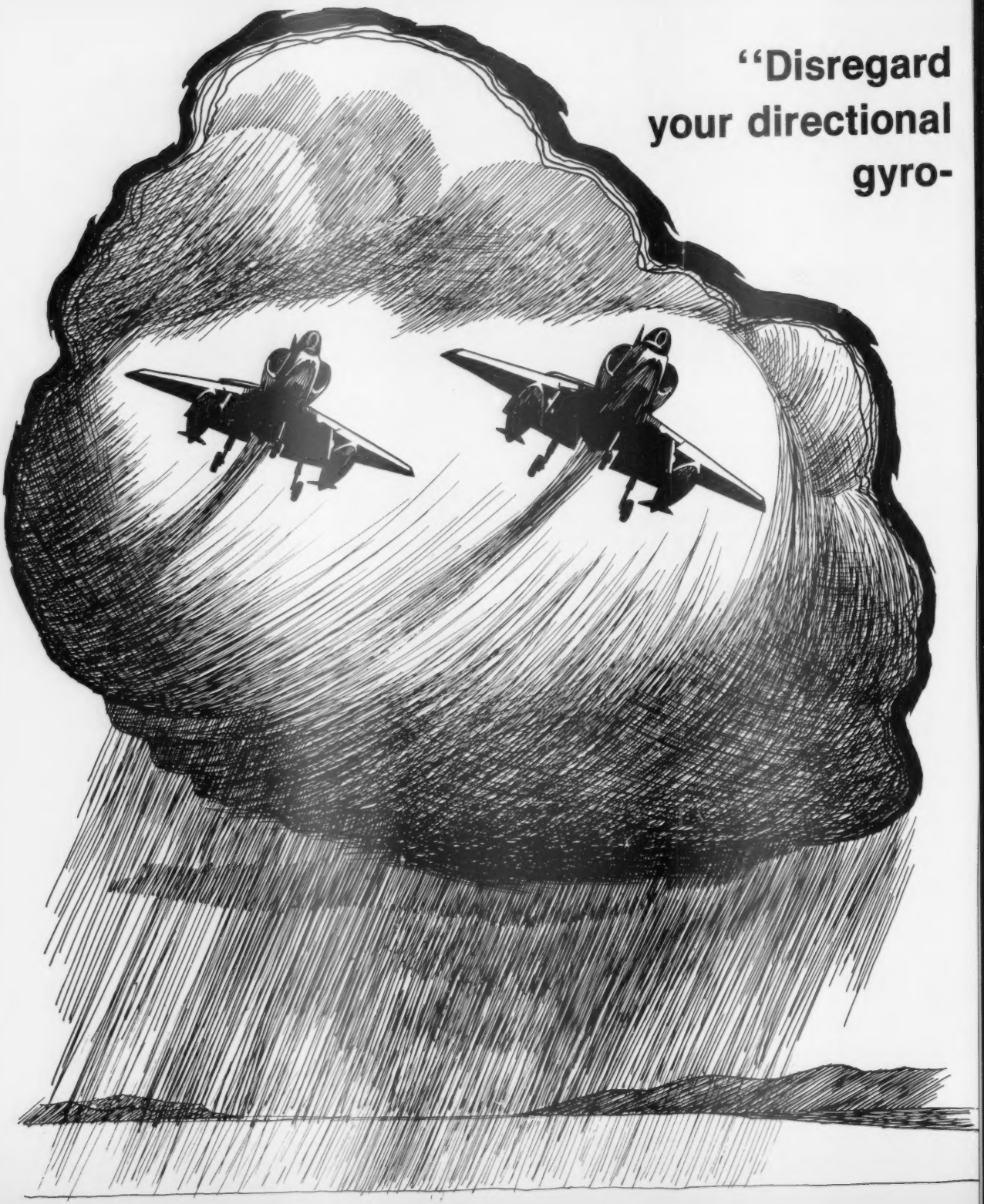
You wipe out the cockpit during your poststart checks as called for, and you feel the controls jamming. What then? There used to be ample guidance while NAVAIRINST 3750.2 was in effect, but now that it has been cancelled, there may be some newer pilots that are not familiar with jammed control procedures. For their benefit, let's review the pertinent parts which may still be useful when restricted flight controls are encountered.

1. All pilots finding the controls jammed or restricted while the aircraft is on the ground shall make no effort to free the controls by force. A light pressure should be held against the controls and an immediate inspection called for.
2. On aircraft using hydraulic power in the flight control systems, and where separate ground connections are teed into the hydraulic system, external power must be applied to maintain system pressure prior to shutting down the engine(s).
3. With power on the aircraft and light pressure on the controls against the restriction, a visual inspection *only* shall be made. All personnel should keep all parts of their body clear of the control mechanisms and surfaces while performing the visual inspection with power on the system.

> CAUTION: Do not remove any structural access door or panel which the maintenance instruction manual states shall be installed during power operation of the system.

4. If the fault is not readily apparent on visual examination, all hydraulic power should be reduced to zero and the trouble isolated by systematic disconnect of controls. The inspection shall be conducted in the presence of qualified personnel.
5. In cases where aircraft have safely returned from a flight during which a controls discrepancy was experienced, a thorough investigation for definite causes shall be made before further flight. All parts of the affected controls system shall be inspected for proper rigging, clearances, and potential causes for interference.

So, skipper, if Col Austin is in your squadron, you'd better tell him to use his bionic eye to detect control stick binding causes rather than use his bionic muscles to free the ensuing binding. For the everyday, run-of-the-mill, mortal, standard model pilot, develop some SOPs for jammed, binding, FODed, or misrigged flight controls. Pass the "common knowledge" of the older pilots along, and it will *remain* common knowledge. Better yet, draft a maintenance TIMI. Help your squadron get out of a bind. ◄


"Disregard
your directional
gyro-

GET SET UP FOR TROUBLE!"

By LtCol D. E. "MOFAK" Cathcart, USMC

"THE Ultimate Penalty for Poor Judgment" (FEB '77 APPROACH) made some good points about the poor judgment in areas which contributed to the accident. However, I feel we missed the boat on the cause of the accident.

We can always say "If I had stayed in bed . . . ", "If I had downed the aircraft . . . ", or "If I had refused to fly, the accident would not have happened." I agree that judgment is the key to longevity in Naval aviation. But, the theorizing and speculation failed to answer one question. Could the accident have happened anyway? A virgin area worthy of exploration is revealed when we read that the final controller directed the pilot to "Disregard your directional gyro," yet the controller's missed-approach instructions were to "Turn left 230; climb and maintain 1500 feet."

GCA has saved many pilots and aircraft. The service is invaluable. However, human beings operate the equipment and are subject to error. Supervisor and controller judgments play key roles in an instrument recovery process that may not have kept pace with the technical aircraft advancements of the past three decades.

Most of my success at staying alive for 23 years of flying approximately 6000 hours in a wide variety of single-engine and/or single-piloted aircraft *(Skyraiders, Skyhawks, Crusaders, Intruders,* etc.) can be attributed to defensive flying – never blindly placing my trust or my life in the hands or equipment of another. An example would be scanning cockpit gages while flying formation wing during actual instrument departures and penetrations.

On the east coast, where normal winter weather often consists of low overcasts and tops about 30,000 feet, I learned early in my career to think ahead and plan for the unexpected. I applied this philosophy to instrument approaches in particular. It just so happened that some of my hairiest moments elapsed on GCA final.

Historically, the GCA controller will call "Disregard your directional gyro" when the aircraft has a perfectly operating heading indicator, but for other reasons, the aircraft is not returning to centerline. On some occasions, a 10- to 15-knot crosswind was not compensated for by the radar controller.

Before I acquired double tracks, I had learned to disregard the controller's turn directions when he disregarded my gyro, provided a nonradar approach existed for the same runway or if I was personally aware of the navaid location aboard the airfield. I would fly the remainder of the approach on TACAN/ADF azimuth, using only the controller's glidepath information.

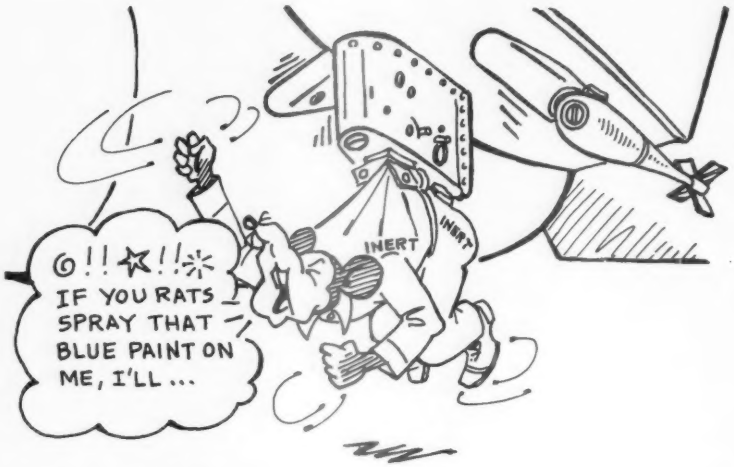
Experience has established that if a controller shifts to "no gyro" control when the aircraft is in actual instrument conditions, a missed approach almost always results. Teaching instrument flying proved to me that any student having trouble with headings on a GCA approach would never successfully complete the approach when the controller commenced calling turns. If a student had difficulty flying a GCA with a perfectly operating heading indicator, imagine what happened when he tried flying while ignoring the instrument. If a pilot is behind the aircraft using all his instruments, then he will be overcome by confusion or vertigo when his scan is changed while responding to "Turn left . . . stop turn . . . slightly below glidepath . . . turn right . . . "

Two of my pilots in a WESTPAC tour experienced a close call on GCA. The flight leader had a no-radio wingman when the weather conditions included low ceilings, low visibility in rain showers, and a high crosswind. The flight was approximately halfway down the glidepath, off centerline with a large heading correction, when the controller instructed, "Disregard your directional gyro, turn left . . . stop turn . . . " After a few hectic maneuvers during which the dependent wingman almost became separated, lead recognized the futility of the approach and wisely executed a waveoff. Fortunately, both aircraft had sufficient fuel for another approach. Lead advised the GCA controller that his directional indicator was operating properly and that a no-gyro approach was unsafe with a NORDO wingman. A successful recovery resulted.

Admittedly, the pilot in the article erred in judgment. But we also contributed to the accident by failing to change an obsolete GCA procedure and/or failing to adequately prepare the pilot for that moment on a hairy approach when he was told, "Disregard your directional gyro." The no-gyro approach has its place, but before using it, let's make sure the gyro *really* has failed. If it hasn't failed, disregarding your directional gyro will only make a bad situation worse. ◄

The author has expressed his opinion about no-gyro approaches. What's yours? In such cases, wouldn't it be feasible to inform the controller on a transmission break that your gyro was OK and you want a regular GCA? We invite your comments. – Ed.

Anymouse



Hung Up

26 THIS is a story of a system of checks and balances which rang up ZERO!

On an inspection tour of the flight line the other day, I was astonished to see one of the squadron's S-3s, freshly refueled, taxiing from the fuel pits with a hung Mk-76 practice bomb still on the wing for all to see. The ensuing investigation provides an interesting and educational lesson on how a potentially disastrous situation can occur, despite an extensive set of checks and balances to prevent it.

A section of two S-3s proceeded to a target area to drop six Mk-76 bombs apiece, rendezvous, and return to Homeplate. On the final run for the section leader, the range spotters called "No spot." Meanwhile, the wingman overhead was counting lead's drops, but didn't observe the last drop. Doubt about the final drop was felt by all, but not discussed while the section rejoined and departed for Homeplate. The routine visual check of each others' bomb racks was omitted to expedite the return trip because of a nauseated crewman. At Homeplate, another S-3, taxiing some distance away, thought they saw ordnance on lead's wing but dismissed the thought, since surely no one would intentionally taxi into the fuel pits with hung ordnance!

The plane captain completed the hot brakes check prior to pit entry without once noticing the bomb at eye level! The members of the pit crew noticed the bomb hanging on the wing but assumed the station safety petty officer observing the refueling would stop the evolution if anything unsafe occurred! The station safety observer allowed the refueling to continue, believing that all ordnance painted blue was inert!

Count them. There are no less than eight checks and balances in the above chain of events. Following proper procedures could have prevented this potentially hazardous incident!

Safetymouse

P.S. This incident was discussed by all personnel involved: range officer, all flightcrews, plane captains, pit crews, the station safety observers, the CPO responsible for qualification of pit crews and safety observers, and tower controllers. The range officer was urged to have his spotters call "possible no drop" in cases where there is doubt. All flightcrews, linecrews, pit crews, and safety observers are being indoctrinated with a new, comprehensive instruction pertaining to fuel pit operation.

Carrier Problems

SOME of the helos attached to our LPH were fragged one day to assist in resupply of a carrier anchored out in a harbor.

What should have been a routine operation of a fairly short duration ended up taking over 3 hours. Carrier personnel demonstrated an unfamiliarity with helicopter capabilities and handling requirements.

The purpose of Anymouse (anonymous) Reports is to help prevent or overcome dangerous situations. They are submitted by Naval and Marine Corps aviation personnel who have had hazardous or unsafe aviation experiences. These reports need not be signed. Self-mailing forms for writing Anymouse Reports are available in readyrooms and line shacks. All reports are considered for appropriate action.

REPORT AN INCIDENT
PREVENT AN ACCIDENT

Pri-Fly made little attempt to control, but simply assigned landing sequences. LSEs used nonstandard signals, and the aircraft were not landed "on the spot."

Two particular transmissions I'll not forget; one was a denial by Pri-Fly of a pilot's request to land when he reported 15 minutes fuel-to-splash. He was told he could not land since "our NATOPS has something about only two aircraft allowed up there." The other was a request by a UH-1 to shut down, and Pri-Fly had to ask the pilot what was involved.

Combat Cargo, or the carrier's equivalent, couldn't unload three pallets per aircraft in less than 35 minutes. Hot refueling took longer than 15 minutes.

Carriers are certified for helicopter operations, but this operation lacked the mythical carrier professionalism. There were no accidents, but any ship certified for helicopter operations should be manned by personnel familiar with helo capabilities, limitations, and handling requirements.

LPHmouse

High and Hot

THIS incident is a prime example of the predictable results of a poor approach, followed by landing long and fast on a wet runway, rather than taking it around.

We had departed Homeplate on a 2-hour training flight in IMC from the deck to 18,000 feet. However, the weatherguesser told us that by the time we returned, the weather was expected to improve from 300 broken to 3000 scattered, and visibility would improve from 1 to 4 miles. It didn't.

We checked Homeplate weather conditions with Center on our return (about 50 miles out) and were advised it was 300 broken, 1000 overcast, ½ mile visibility, rain and fog, winds 045 at 8.

On arrival, we shot a GCA and broke out at 300 feet, as advertised. For some reason, instead of continuing our descent and regular approach speed, we leveled off momentarily and accelerated slightly. When advised we were going high on the glidepath, we nosed over and landed at the 6000-foot-remaining marker. We jumped on the binders when we slowed to 110 knots, but we encountered hydroplaning for the first time in our lives and used up all of the runway in a hurry. With 1000 feet remaining, we felt we would be able to stop; however, we had to use about 100 feet of the overrun to do it.

I've heard that old saw about the runway behind you, but I'm a real believer now. We could have avoided running off the runway by being more precise. Every pilot should remember: Make every approach and landing on the money.

Redfacedmouse

Long Hours

AIRCREW scheduling has always been a rat race and, as usual, we end up playing a losing role. When not flying, we are subject to a myriad of duties, watches, field days, and extra details.

My gripe isn't all the extra stuff we have to do, but the lack of coordination and lack of consideration before we're scheduled to fly. For example, our big bird farm was scheduled for an INSURV, and several of us had been working long hours the past couple of nights to get our spaces "up to snuff." Yesterday I got 2 hours of sleep and assumed a 12-hour watch. I was surprised to see my name on the flight schedule today for a noon brief and a landing time of 1700.

When I landed and debriefed, I had been awake over 30 hours, and was beat. I feel this is a gross violation of safety regulations, my own safety, and that of my fellow crewmembers.

Tiredmouse

A little jolt'll do ya!

By LtCol M. W. Allinder, Jr., USMC
VMFA-122

FOUR crews of F-4 *Phantoms* were preparing for return to MCAS Homebase. The birds were being refueled by truck while one crew was filing the DD-175 for the return flight. During the refueling process, the afternoon sky began to darken with the "duty boomer" moving up from the southwest, obscuring the afternoon sun. The sky was hazy but clear to the north and east – just the normal, usual scattered midsummer afternoon thundershower, right? Ten minutes and six stricken Marines later, the ambulances would arrive to police up after this "usual" isolated thundershower.

The first indications of a storm were the heavy black curtains of rain that began to fall while the weather was 2 or 3 miles from the field. The display of lightning prompted one of the aircrews to secure refueling at once. As the fuel trucks drove away, it appeared that perhaps the storm would skirt the field to the north, and two crews plus their plane captain continued to inspect their birds in preparation for a start and go after the shower passed.

When light rain began to fall, most of the crews ducked under their clean *Phantoms.* A couple stretched out on the ground. Shortly, the intensity of the rain increased sharply, the wind picked up to about 20 knots, and the water began running under the planes. As a result, everyone had to rock on their haunches to stay dry while marvelling at the small hail that began to pellet the ground. The hail was being blown along by winds now gusting to 35 knots. Base ops was about 200 meters away, so no one wanted to make a dash for it and get wet(ter).

The crack of the lightning wasn't nearby at all; perhaps several hundred meters away. There was no flash, but simultaneously with the report, a lot of things happened. Under one *Phantom,* one airman was writhing on the ground; one plane captain was prostrate, unmoving and turning black in the face. One airman had his arm curled up in a peculiar contraction. Under a second F-4 one airman and two plane captains were knocked flat. Since no one was touching an aircraft, the lightning had apparently run along the ground, conducted by the rain on the mat, and shocked the Marines. Mouth-to-mouth resuscitation was immediately administered to the two downed Marines, along with sharp pounding on the chest of the immobilized plane captain whose heart had appeared to stop. The two more severely shocked were held by the hospital for 2 days of observation. The other four were examined and released, apparently no worse for wear. The birds were turned up later and had no discrepancies.

Lessons to be learned? None! We "know" that thunderstorms are cranky. We "know" that thunderstorms are not usual and cannot be trusted. We "know" to get in out of the rain, wind, and lightning. We "know" all these things already, don't we? You better believe six wide-eyed, deep breathing Marines know what to do when afternoon thundershowers approach!

Re "Black nights and glassy seas"

Helston, Cornwall, England – I read with interest the article by LCDR Roop in the DEC '76 issue of APPROACH regarding the phenomenon of poor doppler returns in low sea states and the associated effect on automatic approaches to a hover in the *Sea King.*

This problem has been recognized by the Royal Navy for some time, and while the American equipment is slightly different from ours, perhaps your SH-3 operators would be interested in a few helpful hints as to how we in the U.K. have successfully overcome it.

Before a no-doppler approach is attempted, three conditions must be met:

- The doppler must be serviceable.
- A 5 percent margin in a still-air hover must be available.
- If, during a transition, a doppler malfunction is suspected, the maneuver must be terminated immediately.

Having achieved these conditions, the transition is commenced with the cyclic program disconnected. The aircraft is turned into the wind and decelerated to 60 knots simultaneously, and when a "gate" position of 60 knots and approximately 125 feet has been achieved, deceleration to the hover is begun, using about 5 degrees nose-up with wings level. Both pilots' windows are then opened so that any drift which may develop may be felt as wind through them, and corrected for. In the latter stages, the hover lights are switched on, and the copilot looks down out of his window until he sees the downwash on the sea surface catch up with the aircraft. As this happens, the doppler invariably comes back on line as good returns are restored, and the pilot can then establish a good hover using his doppler indicator before reengaging the cyclic channel of the flight control system.

This system has proven extremely reliable over the years and is invaluable to our crews who are frequently called upon to practice ASW dipping in these conditions. I hope this may be of some use.

LT M. J. Kent, Royal Navy
706 Naval Air Squadron, Culdrose

RNAS Culdrose, Helston, Cornwall – In the DEC '76 APPROACH, LCDR Roop cites past difficulties achieving a stable hover when the sea conditions provide little doppler return. The Royal Navy has a standard technique for "no doppler" approaches, using it on all night SAR-capable helicopters when needed. It involves using the available height hold while the pilot bleeds off airspeed.

In the RN *Sea King,* when the coupler is engaged at the gate, the pitch and roll channels are removed (by means of a switch on the cyclic), leaving only the collective and yaw channels. The pilot adopts a wings-level, 4- to 6-degree nose-up attitude, to eventually stabilize the aircraft in a hover at 40 feet. The copilot monitors both airspeed indicators, airflow through the open cabin windows, and downwash (using hover lights, if necessary) to con the aircraft into a good hover. The pilot should also notice an adjustment of nose attitude downwards as the aircraft comes into ground effect. Downwash should then be creating sufficient doppler return for the complete automatic system to be restored effectively. Granted, the *Sea King's* doppler may be superior to the APN 182, but once in the hover, the downwash should create sufficient dopple.

If the pilot follows procedure and uses his height hold and copilot, the system is entirely effective. The "old H-2 types" who flew into the water were not following procedures and were not using their rad alt hold. Fortunately, most of us did.

A proposed NATOPS change will be forwarded to the model manager. Hopefully, this will enable the H-3 to use all of its ASW systems, day and night.

LT James P. O'Brien, USN
824 Naval Air Squadron

Mobile, AL – After reading the DEC '76 APPROACH article "Black Nights and Glassy Seas" by LCDR Roop, we find it interesting that without the automatic hover, the SH-3 pilot has no apparent suitable method for establishing a hover at night over the water. The Coast Guard has used a method for establishing a hover at night over the water. The Coast Guard has used a method termed "Beep to a Hover" in our HH-52A since the early 60's. It's an instrument approach to a 40-foot hover, flown manually. When the HH-3F entered our service, we modified the HH-52 approach to PATCH (Precision Approach to a Coupled Hover). Again, this is an instrument approach to a 50-foot hover, and as the hover is attained, then various portions of the HH-3F coupler (not fully automatic) may be utilized. We have had great success throughout the years with these effective approaches, and enclosed is a copy of the H-3 PATCH which the editor may forward to LCDR Roop and his SH-3 friends.

LCDR Glenn Serotsky
Coast Guard Aviation Training Center

Letters

Re "Helicopter IFR Minimums"

Mobile, AL – The following remarks are made in response to an article in the JAN '77 issue of APPROACH entitled "Helicopter IFR Minimums." I agree with the author that more needs to be accomplished in the area of helicopter IFR operations; however, I do not feel that the problem is one of recognition by the FAA as the article implies. For instance, the Preamble to FAR Part 97, Amendment 97.803 contains the following statement: "... the FAA believes that the maneuverability of the helicopter permits use of RVR [runway visual range] 1200 feet in lieu of one-quarter mile visibility."

FAR 97.3(d-1) states that: "Helicopters may also use other procedures prescribed in Subpart C of this Part and may use the Category A minimum descent altitude (MDA) or decision height (DH). The required visibility minimum may be reduced to less than one-quarter mile or 1200 feet RVR."

Paragraph 1108 of TERPS reads as follows: "When helicopters use instrument flight procedures designed for fixed-wing aircraft, approach Category A straight-in approach minima shall apply, regardless of helicopter weight."

If we consider these last two paragraphs together, we can conclude that helicopters may use the Category A straight-in MDA/DH and halve the visibility minimum even when circling to land unless required to maneuver at speeds in excess of 96 knots. It should be remembered that when circling to land at the straight-in MDA/DH, the maneuvering area is reduced considerably. FAR 77.25 defines the primary area for various types of runways and should be reviewed prior to establishing procedures for circling at the straight-in MDA/DH.

Finally, FAR 91.116 specifically exempts military aircraft from compliance with the landing minimums set forth therein. As long as the military service establishes its own landing criteria, they are only required to comply with FAR 91.117 which restricts aircraft from descending below the published MDA/DH unless the runway environment is in sight and the aircraft is in position to land.

I think the foregoing shows that the FAA recognizes the unique capabilities of the helicopter and is attempting to update the approach/landing criteria to compensate for these capabilities. As far as the military is concerned, the FAA has provided the exemptions; it is up to the individual service to establish the rules.

The real problem that confronts the rotary-wing community is twofold:

- Integration of helicopters with fixed-wing aircraft within the ATC system.
- Convincing helicopter pilots that it is sometimes safer to fly in the clouds than attempting to fly visually at low altitudes in IFR conditions.

H. R. Anderson
USCG Aviation Flight Center

Re "MedEvac Problem"

NAS Point Mugu, CA – The article in the FEB '77 issue of APPROACH, "MedEvac Problem," was very interesting, although I don't feel all aspects of the incident were discussed.

The article states that the litter was being hoisted through the rescue hatch in the cabin deck. This procedure alone was the start of the problem. The rescue hatch was not designed for litter work, nor should it ever be attempted through the rescue hatch. The only acceptable litter entrances are the forward cabin door utilizing the rescue boom and pallet or the over-the-ramp hoist configuration.

The second point that caught my attention was the failure of the crewman to connect the proper cannon plugs. If no cannon plugs are connected, the hoist will not reel in at all. For the incident to happen as described, the crewman had to have the wrong cannon plug attached.

It is my opinion that the crew aboard this flight either deleted significant information concerning the incident, or the aircraft involved incorporates a hoist system different than other H-46 models. The only segment of the article I find appropriate is in the last paragraph which states that "... all helicopter crewmen be checked out, trained, and qualified in live hoists." If any crewman or command is lackadaisical in maintaining aircrew currency, accidents such as this one are inevitable.

AD3 V. M. Scott
H-46 NATOPS Instructor

FPO, San Francisco – Regarding the article "MedEvac Problem" in the FEB '77 APPROACH, it may appear that the score is Aviators: 1; Ships: 0. But as OinC of a LAMPS detachment aboard a frigate off Okinawa in the fall of 1976, believed to be the ship referred to in your article, I would like to clarify a couple of areas.

First, the illustration accompanying the article assumes that the litter mentioned in the article was a Stokes type steel stretcher with flotation, as described in the NWP-42B. In fact, the litter was a Neil Robertson semirigid poleless type (NSN

APPROACH welcomes letters from its readers. All letters should be signed though names will be withheld on request. Address: APPROACH Editor, Naval Safety Center, NAS Norfolk, VA 23511. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

6530-00-783-7600) used for USMC field evacuation (and carried on most Navy ships), but which has no flotation capability.

Second, as stated, the ship had requested a transfer by litter, and the Stokes litter with flotation was ready for use. However, when it was realized that the Marine H-46 was not equipped with a boom assembly (no externally mounted hoist point to raise a Stokes litter and take it in through the side door), a Neil Robertson litter was dropped by the helo for use. A delay was necessary to determine if the MedEvac was worth the risk of a ship-helo transfer without flotation equipment. The patient had already been properly rigged in the ship's own Neil Robertson litter from the transfer up from sickbay to the flight deck, and the plan was to transfer the patient to the Stokes litter that was expected to be supplied by the helo. This would clarify the apparent delay when it appeared that the litter offered by the helo would not be used. Both the LAMPS aircrew and the ship's corpsman were trained in the proper use of the Neil Robertson litter.

Local inquiry reveals that no forward deployed Marine H-46 helos are equipped for hoisting the Stokes litter.

Recommendations being submitted from our LAMPS squadrons are:

- Develop a flotation collar for the Neil Robertson litter.
- Amplify the helo transfer and helo description portions of NWP-42B as to the capability of Stokes litter transfers by U.S. helos. (LAMPS H-2 aircraft also cannot hoist and take aboard a Stokes litter.)

LCDR J. P. Wrenn
HSL-37

AIRLANT vs AIRPAC Accident Rate

San Diego, CA – Dr. Alkov's article "Personality Characteristics of the High-Accident Risk Naval Aviator" (MAR '77 APPROACH) helps to explain something which numerous aviators have probably pondered: "Why am I still in the business when a lot of the hot-shot aviators I've known are no longer among the quick?"

I'm curious if studies have been conducted that may help to explain a similar phenomena which I've never heard or seen satisfactorily explained, to wit: Why, for the past several years, when the annual accident rate standings are tallied, NAVAIRLANT has an accident rate which is consistently and significantly below the NAVAIRPAC rate?

There seems to be a counterargument for every argument that is presented when the subject comes up. Have any definitive studies been conducted? If so, perhaps the findings and conclusions could be summarized in a forthcoming issue of APPROACH.

CAPT John K. Cammall
SUBINSURVPAC

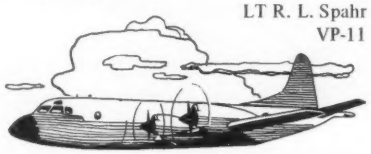
● You bring up a very good question. At the request of VADM Coogan, COMNAVAIRPAC, the Naval Safety Center is looking into this question.

Re "Generator Failure"

FPO, New York – Concerning subject article in the Air Breaks section of the MAR '77 APPROACH. I'm in full agreement that the 10 hours allowed to operate a P-3 generator with a warning light is not an open door to operate an aircraft with a known malfunction affecting the electrical system.

I question the decision on the squadron's part to continue to operate the aircraft for 20 hours. I realize the light was out, but message traffic recommends that any generator which has a generator mechanical fail light be changed, with an automatic BCM (beyond capability of maintenance) action by the supporting activity. The rationale is that although moisture may have induced the warning light, it is an indication of a pending failure.

LT R. L. Spahr
VP-11



NAS Brunswick – I'll be surprised if you don't get a flood of letters from people in the P-3 community in response to the Air Breaks article entitled "Generator Failure" in the MAR '77 APPROACH.

Ever since the brushless generators with AYC314 incorporated were installed, the P-3 community has been plagued with interpreting a generator mechanical fail light. After numerous engineering investigations, it was determined that many glowing and/or flickering warning lights occur during the presence of high moisture concentrations, either from weather or from the aircraft deluge wash system. This is due to the construction of the generator internal insulating material which will break down and allow a ground to be formed for the warning light. This insulation breakdown usually precedes full generator malfunction/failure and caused the Atlantic Fleet type commanders to support the user recommendation for BCM action on such generators (before catastrophic failure). That was back in 1973, but it was reissued as a CNAL directive in February 1977.

Complicating this whole issue is the difference between old and new generators and warning systems. The current warning system is constructed to illuminate when a support bearing *(not* the primary or main bearing) fails in the generator, giving rise to the NATOPS statement that, barring any other indications of generator malfunction, the generator may be operated up to 10 hours after the mechanical fail light comes on. So, here we are trying to outguess a *red* warning light. Statistical data on failed generators over the past years indicates strongly that the generator warning light, flickering or steady, should be treated as a steady light; i.e., operate just as long as it takes to get home and only so long as no other indications of generator malfunction occur.

A recent Incident Report points out the danger: a generator mechanical fail light flickered a few times and went out. Some time later, the same generator off light came on and would not reset. The crew elected to keep the engine running because the mech failure light was out. Upon investigation at homebase later, it was discovered that the generator had completely failed and was a mass of molten metal.

Commander Patrol Wings Atlantic and VP-30 have recognized this danger, and in addition to the maintenance action described above, are recommending an urgent NATOPS change dealing with glowing and/or flickering mechanical fail lights. In addition, we are pressing for a more definitive generator mechanical failure warning system; such a system would activate a red light for AYC314-configured generators when a loss of PMG (permanent magnet generator) voltage occurs (antidrive bearing failure) or when a generator feeder fault occurs (drive bearing plus redundant bearing failure). Such a system could be developed within the framework of existing circuitry and logic networks with slight modifications. The current red light would be wired to an amber caution light and would illuminate whenever the current sensor is activated.

Finally, I agree with the CO in the article, except I would apply it to the P-3 community – not just his squadron. Don't second-guess warning lights!

CAPT R. S. Zeisel, USN
Chief of Staff, COMPATWINGSLANT

Vol. 22 No. 12 NAVAIR 00-75-510

approach

CONTENTS

1 Zero/Zero
By Charles D. Svoboda
3 Good Heavens!
4 "Tower, say your winds!"
By LCDR William C. Vivian
6 Let's Wait and See
8 Grades for Helicopter Pilots
By LT Richard Jaeger
10 But One Breath Left
12 The Pilot's Dilemma
By LCDR Scott Stallings
12 The Rigger's Dilemma
By PRC Jose Hernandez-Diaz
16 Thoughts on Tigers, Scared Tigers, and Farrah Fawcett
By LtCol Vic Steele
20 NAS Oceana, Virginia
By CDR Dick Morrison and LT Warren Bunn
22 Great Guns! Jammed, Binding, FODed, and Misrigged Flight Controls!
By CWO3 J. C. Minnis
24 "Disregard Your Directional Gyro — Get Set Up for Trouble!"
By LtCol D. E. Cathcart
28 A Little Jolt'll Do Ya!
By LtCol M. W. Allinder, Jr.

DEPARTMENTS

19 Bravo Zulu
26 Anymouse
29 Our Readers Respond
30 Letters

Pg. 1

Pg. 16

Pg. 22

RADM Robert F. Dunn
Commander, Naval Safety Center
CAPT W. F. Rau
Chief of Staff
CAPT Robert Lewis
Director, Aviation Safety Programs

CDR J. D. Connery, Editor-in-Chief
LCDR Barry Patterson, Publications Editor
LT Donald A. Burke, Editor
Robert Trotter, Art Director
C. B. Weisiger, Helicopter Writer
R. P. Shipman, Fixed-Wing Writer
Blake Rader, Illustrator
Jack LaBar, Illustrator
Catherine M. Salas, Editorial Assistant
Luvenia Etheridge, Type Composer
Alice Jarman, Type Composer

Our product is safety, our process is education, and our profit is measured in the preservation of lives and equipment and increased mission readiness.

PURPOSES AND POLICIES/APPROACH presents the most accurate information currently available on the subject of aviation accident prevention. Contents should not be considered as regulations, orders, or directives and may not be construed as incriminating under Art. 31, UCMJ. Photographs used to illustrate articles in APPROACH do not necessarily reflect the actual aircraft, air stations, ships, and individuals that are described in the text.

PHOTOS/Official Navy or as credited. Non-naval activities are requested to contact NAVSAFECEN prior to reprinting APPROACH material.

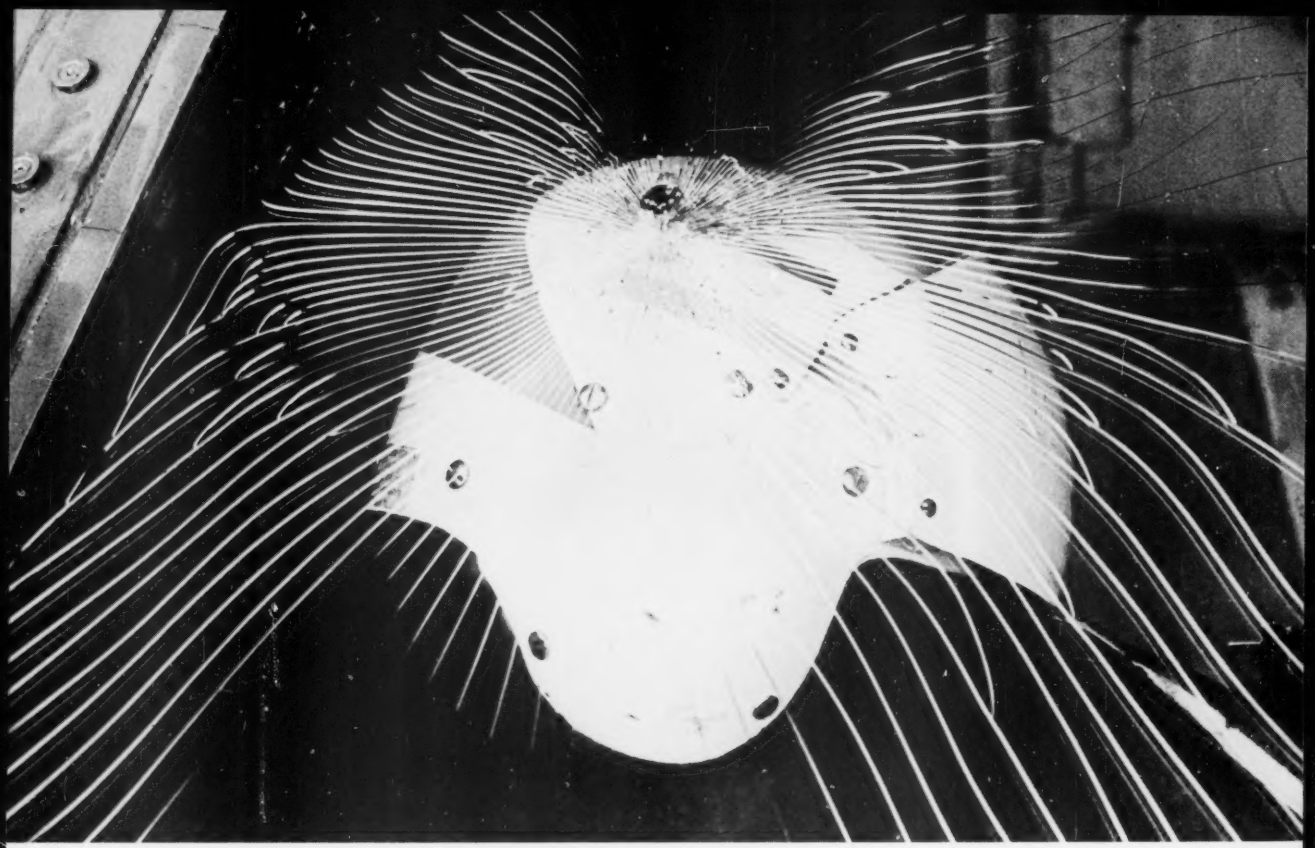
CORRESPONDENCE/Contributions are welcome. The right to make editorial changes to improve the material without altering the intended meaning is reserved. Reference to commercial products does not imply Navy endorsement. Views of guest-written articles are not necessarily those of NAVSAFECEN.

DISTRIBUTION/Requests for distribution changes should be directed to NAVSAFECEN, NAS Norfolk, VA 23511, Attn: Safety Publications Department. Phone: Area Code 804, 444-1321.

PRINTING/Issuance of this periodical approved in accordance with Department of the Navy Publications and Printing Regulations, NAVEXOS P-35. Library of Congress Catalog No. 57 60020.

CREDITS/This month's cover drawing by staff artist Blake Rader depicts the F-4 *Phantom II*, bulwark of the U.S. Navy fighter inventory for almost 20 years.

☆ U. S. GOVERNMENT PRINTING OFFICE: 1977—735-002/6



helmet strike

By LT John J. Nacht
Safety Officer, NAS Cubi Point

WHAT may start as an average-to-good day can deteriorate all too quickly into "one of those days."

This was one of those days for a young copilot who was well known in his command for being a real go-getter. Preflight went smoothly enough as did strapping into the CH-46 helo.

"All set for the prestart checks?"

"Yes, sir, just let me put my helmet up on the glare shield."

(The glare shield on a CH-46 helo is a convenient resting place for one's helmet, to keep it out of the way, yet handy. But there is a trick to getting the helmet to stay where it belongs and not have it unexpectedly fall into the pilot's lap.)

As the pilots progressed through their checklists, the young copilot was experiencing difficulty in mastering the trick of keeping his helmet balanced on the glare shield. His anxiety, frustration, and impatience increased as he fell behind the pilot in the execution of his duties. (Hardly the position for a real fireball to be in!)

At this point, his helmet had fallen into his lap twice. The third time it fell resulted in a situation similar to the last piece of straw and a camel's back. If you will, imagine that same camel standing under a ladder as it watches a black cat cross its path 13 times.

This time the helmet was going to stay put!

The stress put on the inside of the windshield by forcefully striking it with the visor track retaining screw caused the glass to break.

Bird strike or helmet strike — the cause may be different, but the results are pretty nearly the same. ◄

Everybody's doing it!

click click click click click click click click click click click
click click click click click click click click click click click
click click click click click click click click click click click
click click click click click click click click click click click
click click click click click click click click click click click
click click click click click click click click click click click
click click click click click click click click click click click
click click click click click click click click click click click
click click click click click click click click click
click click click click click click
click click click click
click click cli
click cli

for the click of life

...JOIN US!